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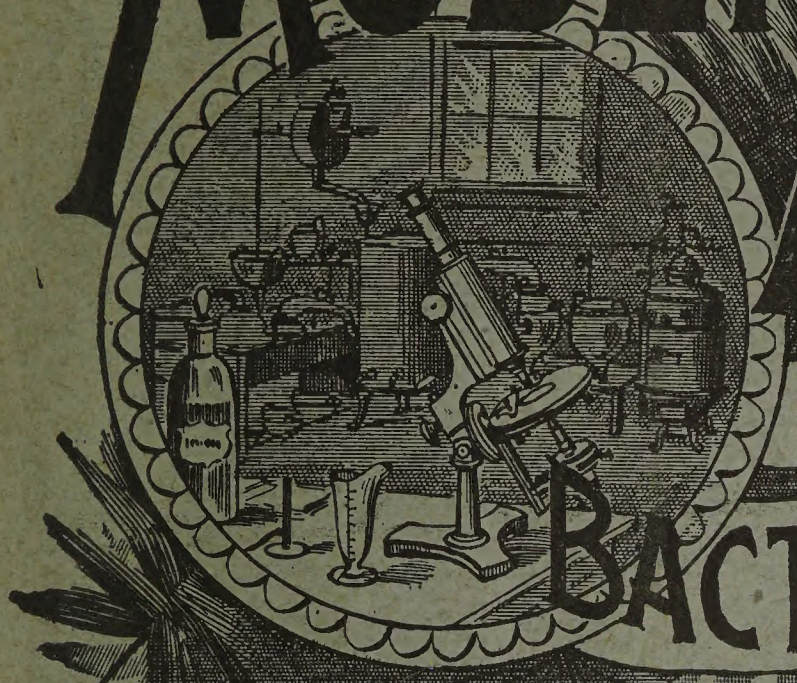

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CONTENTS.

ORIGINAL ARTICLES 231–237

Scoliosis and its Treatment by Means of Gymnastics *(To be continued)*, by DR. T. J. HARTELIUS — Non-Surgical Treatment of the Pelvic Disorders of Women *(To be continued)*, by J. H. KELLOGG, M. D.

TRANSLATIONS AND ABSTRACTS 238–243

Some Pediatrical Don'ts — Typhoid Fever from Oysters — Boiled Milk — Blood Lavage in Surgical Infections — A Case of Antitoxin Poisoning — Roentgen Rays the Cause of Dermatitis and Alopecia — Implantation of the Urethra — Hydrotherapy — A Method of Detecting the Local Excretion of Sugar in the Organs — The Cause of Addison's Disease — The Radical Cure of Hernia in Children — Iodoformin — Cure for Chilblains — Massage in the Treatment of Muscular Rheumatism — Oxygen Combined with Anesthetics — Cure of Tubercular Peritonitis by Laparotomy — Hereditary Tuberculosis — Acoustic Gymnastics — Iodine in the Thyroid Gland — Massage in the Treatment of Joint Fractures — Cold Baths in Delirium Tremens — Relation of Ovaries to Sex — Infiltration of Anesthesia — Function of the Suprarenal Capsule — Oxygen after Ether — Length of the Small Intestine — Typhoid Antitoxin — To Preserve Surgical Instruments from Rust.

BACTERIOLOGICAL NOTES 244, 245

The Microbes of the Human Skin — The Xerosis Bacillus — Löffler's Bacillus and Diphtheria — Celluloid as a Substitute for Plaster of Paris — A New and Easy Method of Preparing Serum Agar-Agar — Tuberculosis of Human Beings and of Fowls Identical — Persistence of the Löffler's Bacillus in the Mucus of the Nasal Passages — Germs in Breast Milk — The Transmission of Tuberculosis by a Brass Horn.

EDITORIAL 246–252

Where to Spend the Winter — Wertheim's Method of Restoring Retrodeviations of the Uterus *(Illustrated)* — Toxicity of the Gastric Juice in Epileptics — The Pan-American Medical Congress. REVIEWS.

LABORATORY OF HYGIENE 253

Report of Examination of Blood for September — Gastric Laboratory Report for September — Sputum Examinations for September — Urinary Laboratory Report for September.

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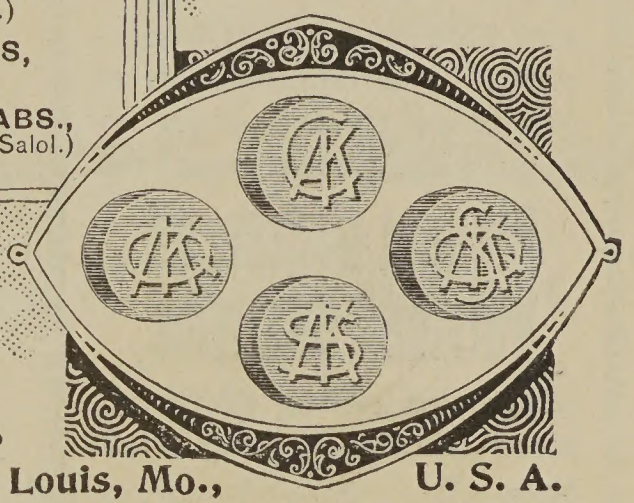

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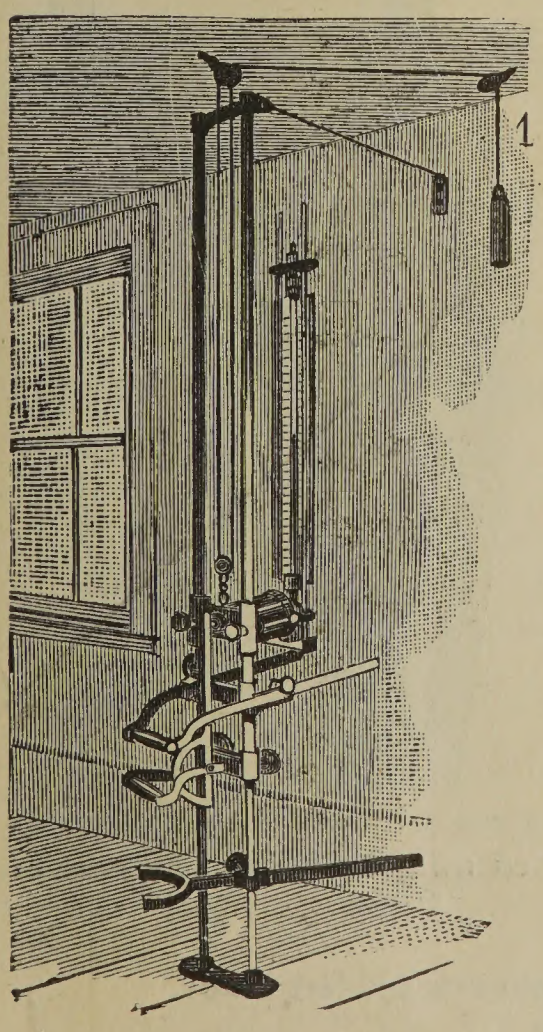

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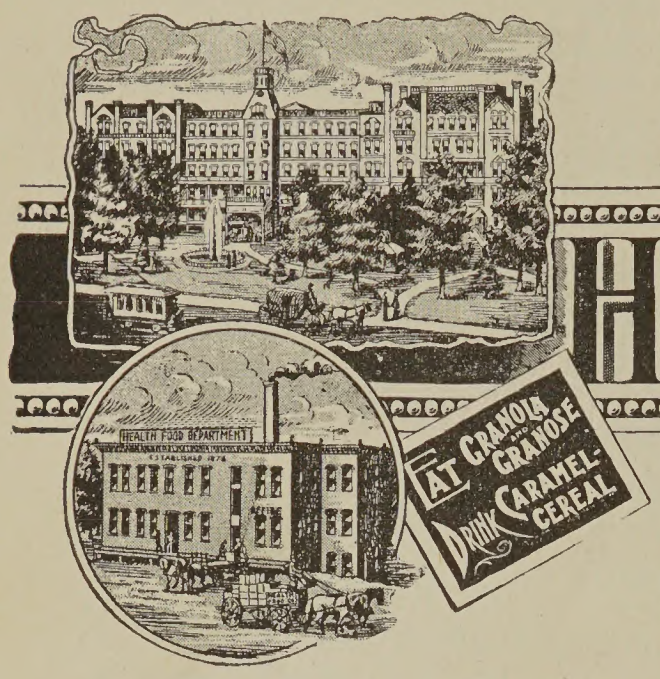

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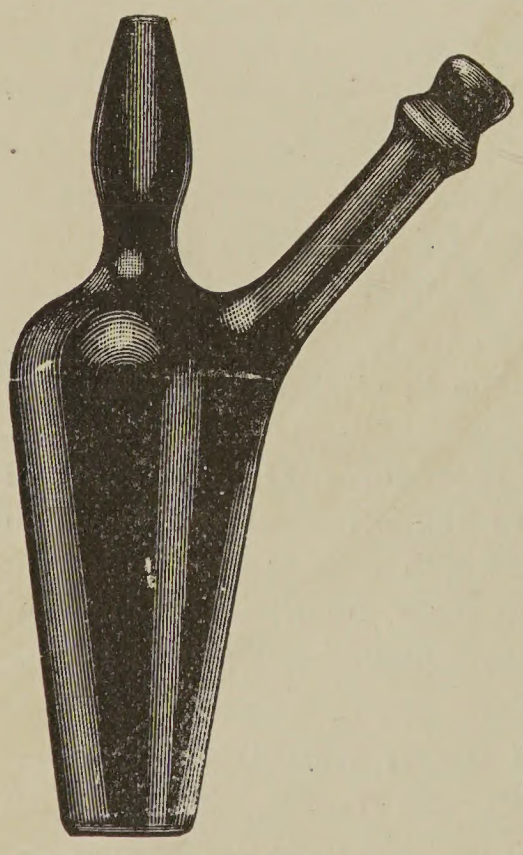

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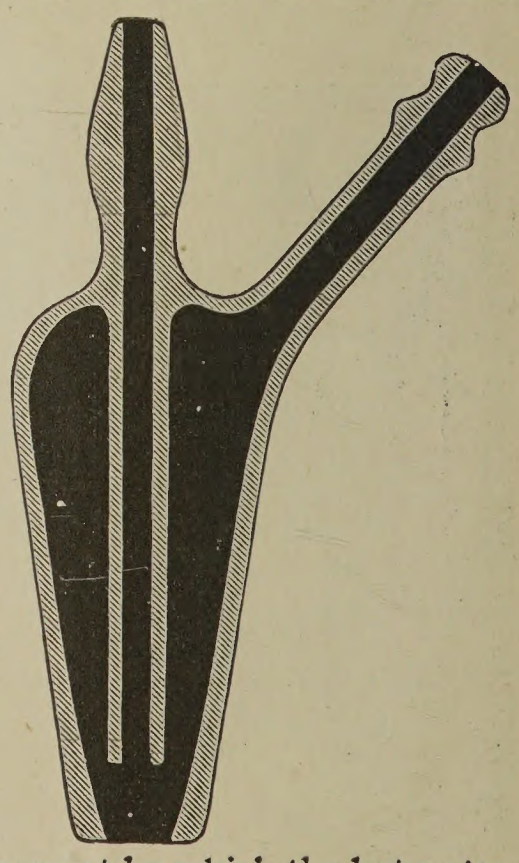

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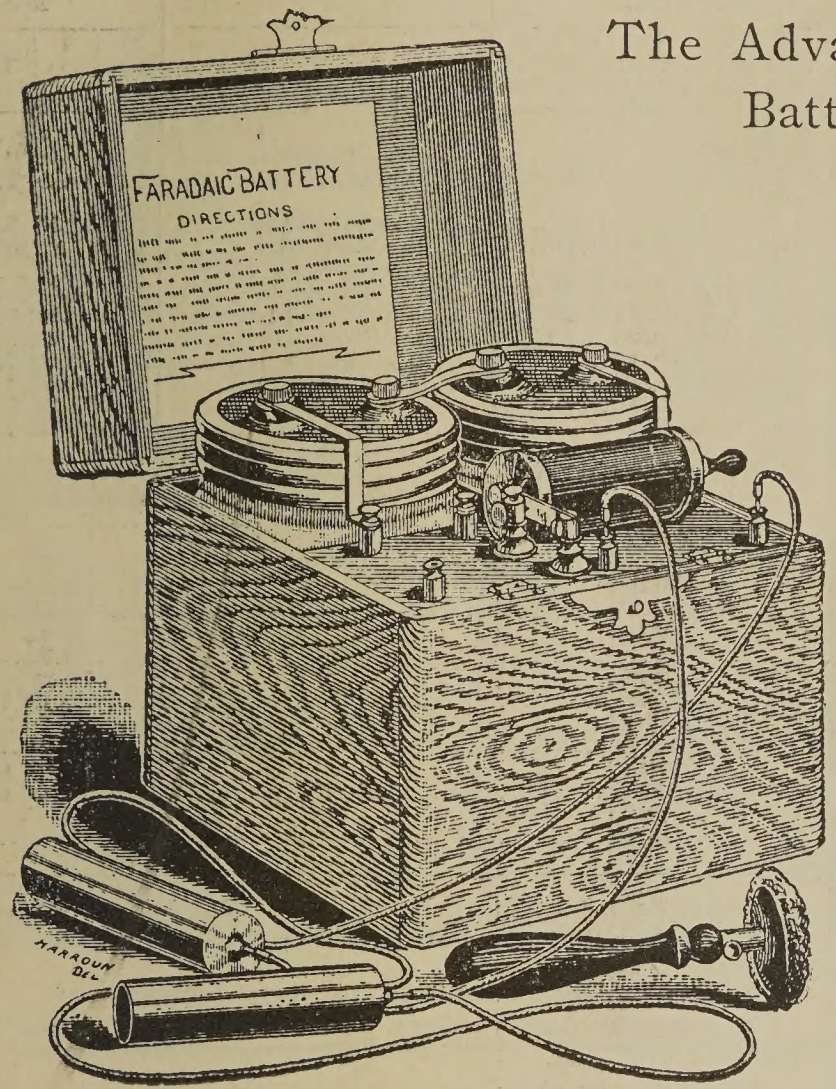

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INDEX TO ADVERTISEMENTS.

MODERN MEDICINE

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BACTERIOLOGICAL REVIEW.

	Page
American Journal of Surgery and Gynecology	4
Antikamnia Chemical Co	1
Battle Creek San. Health Food Co	3d p. cover, 2
Carle & Sons, John	11
Castle & Co., Wilmot,	12
Chicago & Grand Trunk R. R.	4
College of Physicians and Surgeons	5
Fehr, M. D., Julius	3d p. cover.
Fortnightly Press Co.	10
Fuller, Geo. R.	12
Lambert Pharmacal Company	2d p. cover.
Leonard's Illustrated Medical Journal Co.	5
Marchand, Charles	8
Michigan Central R. R.	8
Modern Medicine Publishing Co.	6, 7
Parke, Davis & Co.	254
Sanitariums	4th p. cover, 9, 10
Sanitary & Electrical Supply Co	1, 2, 3, 12
Shipman Engine Mnfg. Co	6
Steel Bath Manufacturing Co., The	7
Treat, E. B.	8

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11.25	5.05	10.30	6.00	.....	.....Valparaiso	5.05	11.35	7.10	.....	4.30
p m										
1.05	6.30	12.00	10.05	.....	.....South Bend.....	3.10	10.15	5.44	.....	3.07
1.46	7.12	12.45	12.40	.....	.....Cassopolis	2.15	9.40	5.13	.....	2.25
2.33	.....	†1.33	3.42	.....	.....Schoolcraft.....	1.20	.....	.....	.....	.....
2.44	7.55	1.48	4.30	a m	.....Vicksburg.....	1.10	8.52	.....	p m	1.30
3.30	8.36	2.40	6.20	7.00	.....Battle Creek.....	12.15	8.15	3.55	9.35	12.50
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6.30	10.45	5.03	.....	9.30	.....Durand.....	9.35	6.05	1.55	6.50	10.25
7.30	11.17	5.40	.....	10.05	.....Flint.....	8.35	5.35	1.28	5.47	9.30
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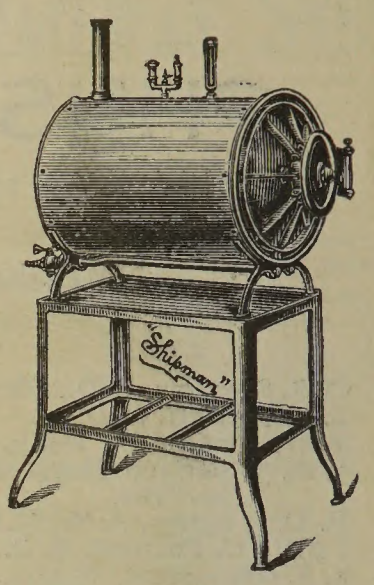

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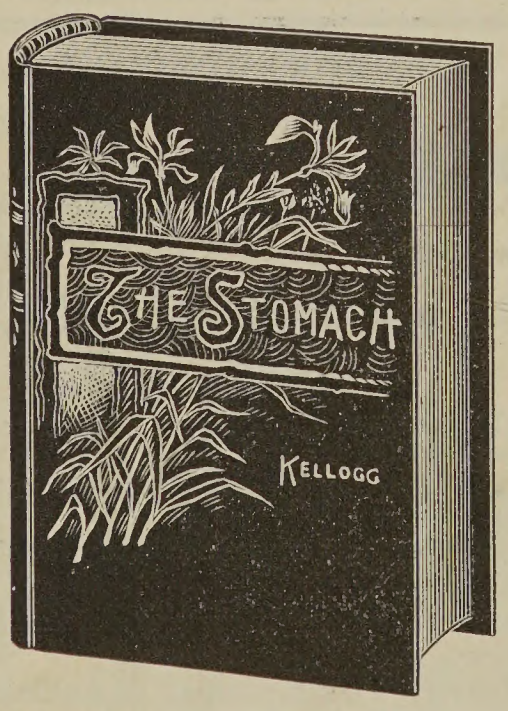

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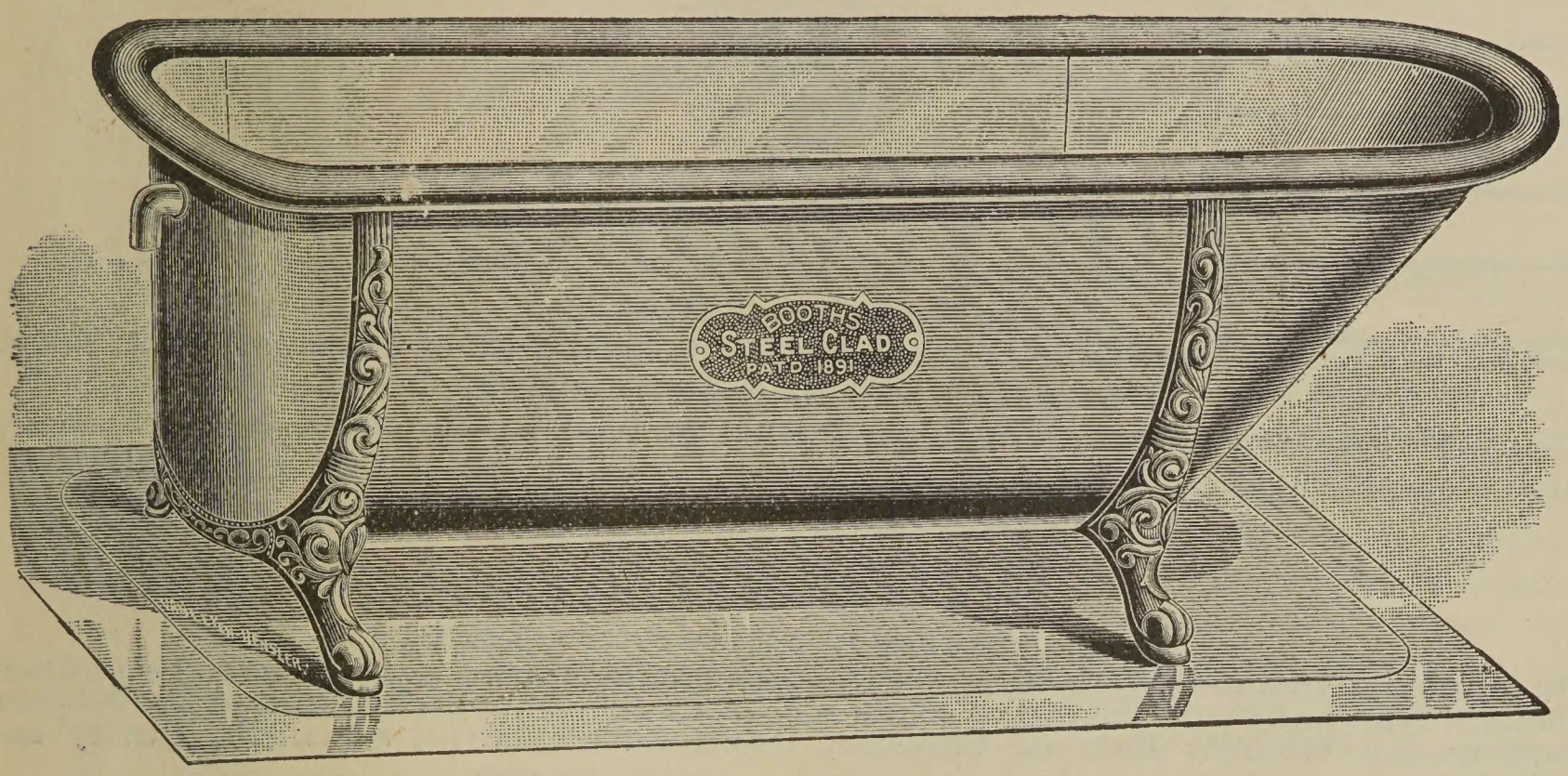

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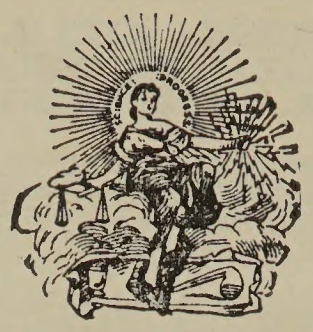

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BACTERIOLOGICAL REVIEW.

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ORIGINAL ARTICLES.

SCOLIOSIS AND ITS TREATMENT BY MEANS OF GYMNASTICS.

BY DR. T. J. HARTELIUS.

Translated by Dr. David Paulson.

(*Continued.*)

Relaxation and Extension of the Muscles of One Side.— Here is an important question in regard to the pathogenesis and causes of scoliosis. If it is a physiological truth that there is required, for the maintenance of the erect position of the spinal column, an equilibrium between the activity of the muscles of the two sides, then it follows, as a pathological necessity, that upon a diseased relation of the muscles of one side and the normal condition of those on the opposite side, the spinal column must be bent with the convexity toward that side where the weakened muscles are found. The weakness may be greater or less, and in proportion as it exists will be the extent of the curvature. If the muscles cannot be spontaneously relaxed, they will remain in contraction upon the concave side. (This contraction must not be confused with the already mentioned permanent retraction of Guerin. This latter is a pathological condition, and myotomy is indicated; the former is physiological, and disappears with the renewal of functional activity upon the convex side.)

But what is the cause of the weakness of the muscles of one side? The S-formed scoliosis rarely appears before the sixth to the eighth year, and then takes the definite form, with the upper convexity to the right and the lower to the left, so that the opposite form, with the upper curve to the left and the lower to the right, should be merely considered as an exception. The single scoliosis passes through a transitional stage to the S-form, and even in those cases where it seems to be single, or C-form, it is generally only apparently single, having one or two small combination curvatures, or a tendency thereto. To accept any of the causes given by the previously named authors as general causes for scoliosis, is opposed to the typical character of the disease. That the muscles upon the convex side, through constant extension, should be weakened, follows as a physiological necessity. That these weakened muscles pass from a physiological to a pathological condition is a foregone conclusion. The solution of the problem depends upon what it is that produces weakness in certain muscles, and thereby disturbs the equilibrium of the spinal column. Can we not, in studying these conditions in practical life, find an answer to the question?

If we observe the condition of the back in a person who writes in the usual position by a table, by which, as is often the case, the right arm and elbow are raised from the side, and the left arm and elbow lie against or near the side, we will see the back curved in the dorsal region, with the convex side to the right. This is most plainly seen in weak and relaxed individuals. It is not altogether improbable or impossible that this position may produce a temporary double curvature, with opposite convexities. The position described is one quite generally taken by students in school. In the common, elementary, and industrial schools there are furnished a large number of observations in this respect. It is no doubt true that instructors give attention to position now more than formerly, but to entirely remedy crooked positions is a delicate, if not an impossible undertaking.

Dr. Ellinger has also, in his writings,

called attention to the optical condition. If the paper which is used lies, as is usual, a little to the right of the writer, then the eye-muscles will be fatigued by looking downward and to the right, whereby their accommodation is disturbed and the sight becomes dim. To relieve this, the head is twisted to the right. Because the paper lies to the right, the left eye is farther removed from the type than the right, and the head must be turned so as to equalize the distance. But in order to read, the head must be rotated so that the lines of the book will be parallel with the line which connects the eyes. For this purpose it is necessary to twist the head so that the left eye comes farther back, and lower, while the right eye is brought forward. This produces a deviation of the shoulders and spinal column and of the pelvis.

This temporary and physiological curve passes, indeed, in a comparatively small number of individuals, into a permanent or pathological condition, as the spinal column is able to resist for a longer or shorter time the pressure of the unnatural position. But if there already exists a natural tendency to such curvature, this natural curve will pass much more readily into a pathological curve. Those tendencies which have the most potent influence may be named as heredity, muscular weakness, and the female sex. A certain position may readily become a habit, and finally one may so adapt himself to it as to become dependent upon it. Then this position will remain permanent, and it may be very readily understood that scoliosis is liable to arise from it.

As a negative proof of the fact that a defective position may give rise to scoliosis, we may mention the absence of these conditions in uncivilized nations. Alexander von Humboldt says that among the many thousands of Caribs, Indians, Mexicans, and Peruvians whom he observed during five years, he did not find one case of natural deformity.

The Excessive Use of the Right Arm, as Compared with the Left. — This condition is, without doubt, a contributing cause to scoliosis in its typical form. Some authors take the position that the use of the right arm more than the left develops the muscles upon that side more vigorously than on the left, and draws the vertebral bodies to the right. ☐ Lachais says in regard to common scoliosis, with convexity to the right side in the dorsal region, that it must be clear to all physicians that this spinal curvature is in nearly all cases the result of a greater amount of vital energy as a consequence of physical development in the right shoulder, caused by the tendency to use the right arm more than the left. Under these conditions the activity of the rhomboideus major, the serratus magnus, and the levator anguli scapulæ muscles of the right arm, exceeds that of the antagonizing muscles, and draws the scapulæ, when in a horizontal position, away from that line which represents the position in which their united forces tend to hold it.

This seems to be the condition, because the posterior half of the chest upon the right side is more protruding than the left side, and seems greater in comparison with the left. The muscles on the left side also seem diminished as compared with the corresponding muscles on the right side. A right conclusion in regard to this is very important in treatment. If the opinion already given is right, then the treatment must seek to strengthen the muscles upon the convex side — the left. But it may be the muscles upon the right side which have excessive activity, and have drawn the dorsal vertebræ to that side.

Every marked curvature is followed by a rotation of the body around the long axes, with the spinous processes directed toward the concave side. This fact is opposed to the idea that it is overaction of the muscles upon the right side which is the cause of the curvature.

The excessive use of the right arm does not directly tend to develop scoliosis, but the influence is none the less in this direction. The condition shows itself plainly. If one lifts a weight with the right arm, the back is bent with the concavity toward the left. It is the muscles upon the left side which bend the vertebral bodies of that side. Here is seen plainly the activity which shows itself in riding, and also in the daily life with its varied duties, which furnish numerous illustrations of the correctness of this conclusion. If one carries a weight on one arm, he will bend to the opposite side; if he carries a weight in front, he will bend backward; and if he carries a weight on his back, he will bend forward. This is a mechanical and physiological

law, which must of necessity become evident. By the carrying of any weight with the right arm,— and this of course happens in nearly all lines of work — the muscles upon the left side will be contracted, and the point of gravity drawn to the left in order to maintain mechanical stability, the muscles upon the right side being relaxed. The change in the beginning is of course physiological, but the relaxation may readily pass into a habit, and by a permanent weakening the muscles may lose the power to regain their normal position. The condition then becomes pathological.

Resting upon One Leg, and Sitting in a Bad Position.— When a person stands upon one leg, the back is bent in the lumbar region, and also to a greater or less degree in the lower dorsal part, with the convexity toward the side opposite that of the resting limb. Every one who has given attention to this question will observe that it is a common habit for people to rest upon one leg, principally the right. At the beginning, one will change from one limb to the other, but he will gradually accustom himself to depend more upon the right. Of course we might ask why it becomes a habit to rest upon the right limb in preference to the left. This may find its explanation in the fact that the right limb has acquired greater energy than the left, as is shown very clearly in the use of the right arm in preference to the left.

It may also be observed that in sitting, for example, by the school-desk, the body is often held in a bad position in regard to the pelvis, so that the trunk rests only upon one half the buttocks, generally the right. This also, in some cases, gives rise to curvature in the lumbar region, with convexity to the left. That the acquiring of a bad position occurs as the result of weakness in the muscles is shown by a careful examination of the sitting and standing positions of youth. If the bad position has become a habit and an organic physiological necessity, it will sooner or later become pathological, provided no appropriate means are used to prevent it.

We cannot, however, agree in all respects with Von Werner's statement, that common scoliosis depends upon a bad habit and moral defect in the will, and that both the preventive and the curative means should be moral.

If a curvature is present, a tendency to counter-curvature is set up. This will arise sooner or later if the primary curve is not met with efficient remedies. In a fully developed double curvature, it may be difficult, without special practise, to decide which curve is the primary; but in the early stages of scoliosis there is no difficulty, as in most cases it is assumed that the greater curve is primary. The determining of this point has, however, no special bearing upon the treatment. That the lumbar curve, according to Malgaine, is seldom the primary does not agree with my own experience, according to which the curve in the dorsal region is the most frequent; but it is not at all rare for the first curve to begin in the lumbar region. That the primary curve is followed by a secondary or counter-curve depends upon whether the cause for the secondary curve lies in the primary curve. Through the primary curve the point of gravity is drawn to the side, causing a certain disturbance of the equilibrium of the head and trunk above the curve. Hence the greatest weight of these parts falls toward the concave side; and in order to counteract this condition, muscular activity is instinctively set up, which creates a curve counter to the primary. It is not impossible to demonstrate this. If the body be so poised as to produce a single curvature, then there will be shown a tendency in the lumbar region opposite that in the dorsal region.

The spinal rotation around the long axes of the vertebral bodies, with the spinous processes directed toward the concave side and the bodies toward the convex side, depends upon a well-grounded, definite cause. In a post-mortem examination, H. Meyer found that pressure upon the spinal column bent it to the side. There was some lordosis when the experiment was performed upon the spinal column of youth. There was, however, no rotation of the vertebral bodies upon their long axes in the spinal column of aged individuals. The scoliosis which arises in persons after the fifteenth year should therefore not be followed by rotation of the vertebral bodies, but scoliosis arising in young individuals should be followed by lordosis.

This, however, is altogether too much opposed to experience, for neither in the fifteenth year nor later are we free from vertebral rotation in scoliosis. A curva-

ture, even in the most severe degree, is quite frequently uncomplicated by lordosis. Whatever the given experiment does show, however, it seems that the result of exclusive mechanical power applied to a dead thing cannot have a full analogy in the living organism.

On the other hand, the mechanical physiological theory (Delpech, Pravay, Eulenburg, and others) seems, in regard to the origin of spinal rotation, to possess probability. As the secondary lateral curvature is a compensation, through the fact that the individual instinctively strives to bring the point of gravity to the middle of the standing-base, so also spinal rotation arises through the necessity of a compensation. Each time that the spinal column is strongly curved, the weight is brought to bear upon parts of the apophyses which are upon the concave side. There is thus insufficient support for the weight of the upper portion of the trunk. The weight and insufficiency of support are increased by the movement of the arm. Then, instinctively, the vertebral bodies rotate with the spinous processes toward the concave side, and the bodies toward the convex side. By this the apophyses come into such a position as to furnish a better support.

THE PREVENTION AND TREATMENT OF SCOLIOSIS.

Can scoliosis be prevented? This question may be answered in the affirmative. In a predisposition to scoliosis, especially if inherited, lies the great tendency for its appearance. This may, however, be combated if we are early on the lookout for the slumbering enemy. I am not here speaking of those cases which occasionally arise as the result of temporary causes, as disease of the bone, pleuritic exudates, etc., but in regard to common muscular scoliosis.

So long as the equilibrium is maintained between the muscles of the opposite sides, scoliosis does not appear. Prevention of scoliosis must therefore be employed for the maintenance of this equilibrium. This may be done partly by the negative method of avoiding an improper position in sitting or standing, and one-sided body movements, and partly—chiefly—by appropriate hygienic means. To these latter belong good food, fresh air, tonic baths, and appropriate gymnastics. *I have never yet known scoliosis to occur when gymnastics had been systematically used from the earlier years.* By the exercise of a firm will, the development of scoliosis may be prevented by the exercise of suitable body movements, which may readily be carried out even in the home. For example, the following may be used: Standing, arm-raising; forward-lying; stretch-standing; knee-bending; side-lying, rising; standing, arm-bending and stretching upward and outward; neck-firm, twisting; standing, arm-swinging.

That scoliosis arises so seldom in boys in comparison with girls, is no doubt due to the fact that boys are accustomed to more vigorous physical exercise than girls. Scoliosis very often occurs among the working classes, who have, during their growth, been deprived of gymnastics. By this we are reminded of the necessity of furnishing a thorough course of gymnastics for the common schools. Here it is of the greatest importance to prevent scoliosis, because, for several reasons, we meet with greater difficulty in its cure when it is overlooked in the earlier stages; and then when it is developed, it requires a period of time for treatment which circumstances often do not allow.

In the treatment of scoliosis both the orthopedic method and the gymnastic method have been used, and sometimes both together. The orthopedic method is the oldest, but it has become less common as the other method has acquired greater confidence. The former method lacks particularly in this, that although it may, by external mechanical force, extend the spinal column, it does not thereby strengthen the organism. Subsequent to the passive straightening, the organism could exercise its resisting power, and thus hinder the spinal column from regaining its former position. Even if it be admitted that the mechanical apparatus is well constructed, and is not in itself injurious to the organism, yet if it be used alone, its useful influence is doubtful, as the strength of the organism is not thereby rendered more competent to maintain the proper position of the spinal column. This method has made no progress in Sweden.

Does the gymnastic method show any deficiencies in its results? and does it require the assistance of mechanical means? The practical treatment of scoliosis con-

sists, in many places, exclusively of the gymnastic method, while in other places the two methods are connected in treatment. Two methods which are partly alike, but different in some particulars, cannot be equally good. Can the gymnastic method be supported and the cure assisted with the co-operation of supporting apparatus? If so, it becomes a great wrong not to utilize these, and responsibility rests upon those who do not make use of them in the gymnastic treatment of scoliosis; for it is an undeniable duty to use the best legitimate and useful means attainable for the restoration of health.

For the proper treatment of scoliosis, a right conception of the anatomico-pathological condition is necessary. If the muscles upon the convex side are weakened or pathologically changed, those upon the concave side remaining normal or with very little disturbance of nutrition, then it is clear that the diseased muscles must be restored, strengthened, and developed. This cannot be done by simple mechanical extensions. For the restoration of the weakened or pathologically changed muscles, two means are used, — muscular movements and electricity, — but for the restoration of a deformity of the spinal column, extension is required.

The question arises, therefore (and it is a question that must be settled), whether external mechanical means are necessary for this extension, or whether it can be done by the individual's own efforts. This is not difficult to demonstrate. In slight cases of lateral curvature, where no deformity has taken place in the vertebræ, the spinal column is straightened at every stretching of the back. By bending toward the side of the convexity, the curvature of the back is not only corrected, but it may be bent to the opposite side, showing an extension in the highest degree. In those cases where the deformity in the vertebral bodies makes a complete extension of the spinal column impossible, a complete straightening of the spinal column may often be effected by personal efforts. This is shown in such exercises as stand-bending; back-raising under resistance at the neck; hanging, neck-bending; forward-lying; and others. No external mechanical means are capable of stronger extension upon the curvature than these and some other active movements.

(To be continued.)

NON-SURGICAL TREATMENT OF THE PELVIC DISORDERS OF WOMEN.[1]

BY J. H. KELLOGG, M. D.,
Battle Creek, Mich.

THE great advances which have been made in recent times in surgical technique, and especially the great decrease in risk from surgical procedures secured by asepsis, have led to a very great extension in the domain of surgery, and especially that department of surgery which relates to the diseases of women. Gynecological operations which a few years ago were considered too hazardous to be attempted by any except a few bold and experienced operators, and then only in cases in which loss of life or total disability could be prevented by no other means, are now undertaken by almost every surgeon and by gynecologists of little or no experience, and in cases in which a dozen years ago no reputable surgeon would have dared to advise an operation of so grave a character. Not only ovariotomy but hysterectomy is now performed by some surgeons with even less consideration than surgeons formerly gave to the matter of the removal of a toe or the tapping of a dropsical abdomen; while such operations as the repair of a torn cervix or a lacerated perineum have come to be regarded as minor operations, requiring scarcely more thought than the removal of a corn or an ingrowing toe-nail. It is the opinion of the writer that a vast amount of unnecessary gynecological surgery is being done at the present time, not dishonestly or even carelessly, perhaps, but because operation is easy, more often brilliant in its results, and has come to be something of a fad. The modern gynecologist is necessarily a surgeon; and a surgical training naturally tends to create a dislike for the slow and tedious methods of non-surgical treatment, while the physician's increasing skill gives him not only an increased aptitude for surgical measures, but an increased disposition to apply the surgical method whenever possible or allowable. His dexterity with scissors and needle renders it almost an actual distress to him to allow a perineal tear or a cervix laceration, even though very small in extent, to escape

[1] Reprinted from the Transactions of the Michigan State Medical Society, June, 1896.

surgical attention, without taking into consideration the bearing which the slight injury may have upon the health or comfort of the patient.

I am not disposed to be cynical nor to criticise in an unfriendly way any medical brother, but the immense strides made by gynecological surgery in recent times have overshadowed non-surgical methods, and there appears to be a real necessity for greater attention to the development of non-surgical therapeutics in gynecology, and for a revision of some of the views which have heretofore been maintained respecting the bearing of slight injuries of the pelvic structures to various other and remote pathological conditions.

Many experienced gynecologists have become skeptical respecting the awful consequences which have been so graphically pictured as likely to result from a small cicatrix in a cervix or a perineum. For myself I must confess that I have never yet seen any serious reflex phenomena resulting from such a condition, and do not see any good reason why such a cyclone of reflex effects as has been pictured to us should arise from a scar in the cervix or perineum any more than from a scar on the palm of the hand or the tip of the tongue. I am glad, at least, to say that more than a dozen years ago I ceased to operate on the cervix or the perineum simply for the removal of scars; in fact, I am glad to say that I never did much of that kind of surgery.

I think, also, that I am correct in believing that quite a large proportion of observing gynecologists are coming to attach far less importance to small lacerations of the perineum as factors in the production of uterine prolapse. Personally, I do not remember to have ever seen a case in which I felt confident that a retroversion was due to laceration of the perineum; and I am certain that I have never seen a case in which the repair of a lacerated perineum has resulted in a cure of a retroversion or seriously prolapsed uterus, excepting in case of procedentia, and then the relief has usually been but temporary, a more thoroughgoing operation being required. Indeed, I have frequently been struck by the fact that the uterus and ovaries, and other pelvic viscera, were all in perfect position, notwithstanding the patient under examination was found to be suffering from a slight laceration of the perineum.

It has always appeared to me very remarkable that if the perineum plays so absolute a rôle in the support of the pelvic viscera as has been supposed, we should so often find cases of complete procedentia without any serious laceration of the perineum. I have seen a good many cases of complete laceration of the perineum; and yet, strange as it may appear, I have not in a single one of these cases found procedentia, nor any condition even approaching complete prolapse. I am convinced that we have had exaggerated views upon some of these questions, and it appears to me that we have been working at the wrong end of the problem. The careful study which I have given this subject during the last ten or twelve years has firmly established me in the opinion that displacements of the uterus and ovaries rarely, if ever, depend upon weakness or deficiency of the perineum. I have undertaken to show, in various papers published during the last eight years, —

1. That displacement of the pelvic viscera is not, as a rule, an isolated pathological condition, but is associated with similar static disturbances of the viscera of the abdominal cavity; and,—

2. That the principal causes of uterine and ovarian displacements are such as affect the static relations of the viscera of the abdomen as well as those of the pelvis; and hence the rational treatment of pelvic displacements requires the removal of all causes of displacement of the abdominal as well as of the pelvic viscera, and the restoration of the normal support of these organs.

A careful analysis of the symptoms manifested in several thousand cases of women presenting distinct evidences of pelvic disease, has convinced me that a large share of the nervous and other functional disorders from which these patients suffer is due, not so much to the pelvic disorders themselves, especially in cases of displacement of the pelvic viscera, as to the condition of general visceral prolapse involving nearly all the organs of the lower half of the trunk.

Most women suffering from pelvic diseases complain of pain when on the feet, dragging pain in the bowels and the lower part of the back, pain at the extreme lower end of the spine, soreness and pain in the region of the navel, a feeling of lack of support in the lower abdomen, a

sensation commonly described as goneness at the pit of the stomach, weakness of the lower limbs, pain in the back, crawling, tingling, numbness, stinging and other sensations in the legs, cold hands and feet, burning of the soles and palms. Sometimes the patient says that, when on her feet, she is only comfortable when holding up the bowels with the hands. Such patients tenaciously cling to the corset, because they evidently need some support. They often complain that when they undertake to stand without a corset there is such a sinking at the stomach that they are compelled to sit down. The evident cause is the dragging of the prolapsed bowels and stomach, occasioned by the relaxation of the abdominal muscles by which the branches of the pneumogastric and sympathetic nerves are put under an unnatural strain. It is evident that in these cases a large part of the symptoms are due, not to the pelvic disorder, but to the general disease of which this is a part.

If we expect to cure a woman who is a chronic sufferer from pelvic disorders, we must treat the patient rather than the malady. This is a principle which applies, in fact, to most chronic disorders; and a failure to recognize this principle is the rock upon which professional effort often splits. It is as hopeless to undertake to cure such maladies by the usual routine methods, which are addressed to local symptoms and conditions only, as to expect to kill a noxious weed by picking off its flowers or a few of its leaves. The whole disease must be eradicated, root and branch. This can only be accomplished by the removal of the morbid conditions which are the real cause of the multitudinous symptoms by which the disorder is recognized and for which it is often named.

Rational treatment of this class of diseases must include, first of all, the adoption of a proper dress, which is one in which every muscle in the trunk can have perfect freedom to act. The patient must be instructed to have her dress measure taken with the chest fully expanded, and to allow an inch or two for growth, in the hope that she may to some degree overcome the deformed condition induced by ignorant obedience to fashion, rather than to the laws of physiology and the dictates of common sense.

Shoulder braces and harnesses of every description are, on the whole, a snare and a delusion. The only correct principle is to suspend everything from the shoulders by means of a waist, which will equally distribute the weight upon natural bearings, and at the same time give latitude for the greatest freedom of waist movement.

If all women would at once adopt a healthful mode of dress, probably half of our profession would be obliged to seek some other calling. Certainly at the present time, more than half our business consists in efforts to repair damages which women have ignorantly inflicted upon themselves. Neither a proper knowledge of the requirements of the body, nor a just consideration of the principles of beauty justifies the popular mode of dress. The idea that a small waist or a round waist is beautiful is a mischievous and dangerous notion, which ought to be eradicated from the public mind.

For twenty years I have made constant use of gymnastics in the treatment of this class of disorders. On beginning a course of exercises, the first thing requisite on the part of the patient is a suitable dress. The ordinary fashionable dress is absolutely unfit for this purpose. Indeed, it is dangerous for a woman to undertake a gymnastic exercise or any considerable degree of exercise of any sort, in a dress which constricts the waist. When the abdominal organs are forced down by waist constriction, any exercise which brings into powerful action the diaphragm or abdominal muscles has the effect to force the depressed organs still farther downward, and thus the mischief produced by improper dress is greatly aggravated. No constriction about the waist whatever should be allowed. Even a gymnastic dress is sometimes made harmful by the tightness of the bands. My instruction to ladies for the fitting of a dress at the waist is to have the measurements taken during a deep abdominal inspiration, and then add two or three inches so as to allow room for development.

At first the exercise employed must be very light,— barely enough to produce gentle fatigue. Some soreness of the muscles will always be experienced if the amount of exercise taken is sufficient to accomplish any good.

The exercises which I have employed are, in general, light calisthenics, consist-

ing of free-hand and body movements, and the use of wooden dumb-bells, Indian clubs, wands, chest weights, and various gymnasium apparatus for bringing into play special groups of muscles of the arms, trunk, and limbs; walking exercises, breathing exercises, Swedish gymnastics, and Delsarte. I employ exercises with iron dumb-bells of light weight, and light exercises with a trapeze, swinging rings and horizontal bars, in suitable cases. The weight of bells and clubs and the exact measure of weight to be used in exercise with chest weights or other apparatus are indicated for each patient, as well as the time or number of strokes in the employment of rowing-machines and similar apparatus. The employment of various apparatus and different forms of exercise is important, as it not only encourages patients to take a larger amount of exercise than they otherwise would do, but enables them to do so without injury by bringing into play different groups of muscles or different combinations of muscular groups, and so preventing fatigue before a full dose of exercise has been taken.

The purpose of the general exercise referred to is to improve the muscular condition of the patient in general. Special attention is of course given, in the adjustment of exercises for the patient, to the development of specially weak points; but in addition to the exercises named, a large number of special exercises are employed having particular reference to the development of the muscles of the trunk, which are always found disproportionately weak in a woman accustomed to wearing the ordinary style of dress.

For this purpose I find particularly valuable such exercise as lying upon the back and raising the legs from horizontal to perpendicular in alternation. Fixing the legs, and resting the body supported upon an incline adjusted at an angle suited to the patient is another special exercise of value. Resting in a horizontal position, face downward, sustaining the weight upon the elbows and toes, with the body held rigid and free from the supporting surface, is an excellent exercise to develop the muscles of the back and abdomen. This exercise may be varied by alternately raising and lowering the body, resting a few seconds in each position. Drawing the body up in a prone position to an angle of forty-five degrees by means of the toes' catching the rounds of the ladder, is an exercise of great value for patients who are able to take it. It not only strengthens the muscles of the trunk, but at the same time empties the portal veins. A breathing exercise which I have found of great value is the following: Placing herself in the genu-pectoral position, the patient takes a deep abdominal breath, then expels the breath by contracting the abdominal muscles forcibly, at the same time drawing up as strongly as possible the muscles of the pelvic floor. By this means the round ligaments, as well as the abdominal and perineal muscles, are vigorously exercised.

The passive and active-passive exercises of the Ling system of manual Swedish movements are also of great value in these cases, as I can testify after having employed this system for nearly sixteen years. I visited Stockholm for the purpose of placing myself under the tuition of Professor Hartelius, the head of the government school there, in order to become practically familiar with the Swedish movements and Swedish gymnastics. I consider these systems of active and passive exercise indispensable in the management of these cases. My patients are daily exercised, in classes, by a person trained for the purpose; and I am sure there is nothing I prescribe or do for them which is more appreciated than are these exercises. Of great value also is manipulation of the bowels, especially directed to the restoration of prolapsed viscera to their normal position.

By massage the dilated and atonic stomach and the impacted and obstructed bowels may be assisted to get rid of their contents. The circulation is also accelerated; and the prolapsed bowels, kidneys, liver, and spleen being restored to position, and thus making room above, the prolapsed organs of the pelvis are encouraged to resume their normal position. Indeed I have constantly seen most excellent results from the employment of abdominal and pelvic massage, in conjunction with general and special gymnastic exercise in various forms of active and active-passive Swedish movements. For example, I have frequently seen the aggregate strength of arms, legs, trunk, and the respiratory organs increased by three months' exercise more than two hundred per cent., and I have many cases on record showing an increase of more

than four hundred per cent. In one instance the percentage of increase was nearly five hundred.

It is, of course, essential in carrying out a system of treatment of this kind that the physician should have at command thoroughly trained assistants, who can execute, or assist the patient to execute, a prescription for exercise as accurately as an experienced pharmacist prepares a medical prescription. I am sure, however, as must be conceded by any one who has given the matter careful thought, or at least by one who has observed the result of methodical treatment of this sort, that a rational treatment of pelvic diseases in women must include systematic exercises such as those which have been briefly outlined. By means of such exercise the abdominal muscles are strengthened so that they may be able to hold the abdominal viscera in their proper place. The weakened respiratory muscles are developed, and the artificial mode of breathing corrected, so that the respiratory process gives to the abdominal and the pelvic circulation the natural and needed assistance, thus relieving pelvic congestions. I have often been astonished at the rapidity with which pelvic congestions, ovarian and uterine irritability and hyperesthesias, and cervical and vaginal catarrhs disappeared under the influence of normal respiration and increased strength of the abdominal muscles. General nervous irritability, spinal hyperesthesia, and general debility quickly yield in the majority of cases to a judicious system of exercise combined with other rational measures, although previously refractory to the most carefully prepared medical prescriptions, rest-cure, and various plans of management.

It is, of course, necessary to select carefully the cases to be subjected to this kind of treatment, and to begin the treatment in a most judicious manner. Cases of pyosalpinx, or active ovaritis, or salpingo-ovaritis, or any condition of the pelvic organs in which there is an active inflammatory process going on, as indicated by local pain, heat, tenderness, throbbing, and a general rise of temperature, are not, of course, fit subjects for treatment by exercise.

The value of hydrotherapeutics, at least in the form of the vaginal douche, is now well understood by the profession, although I fear not as thoroughly utilized as it ought to be. But there are other measures of treatment the value of which are fully as great as that of the vaginal douche, especially the sitz bath, the wet girdle, or *umschlag* of the Germans, and the cool spray or shower bath. The sedative effect of the sitz bath, and the powerful tonic effect of cool applications to the surface of the body, are of the highest value.

Abdominal massage is almost indispensable in the treatment of these cases. Its purposes are : —

1. To relieve the strain upon the abdominal sympathetic by replacement of the bowels, stomach, and other displaced viscera.

2. To relieve the obstinate constipation which exists in a large proportion of these cases, and which contributes materially to the toxemia which is the existing cause of the attacks.

3. To aid stomach, intestinal, and liver digestion.

The procedures employed by the writer in abdominal massage are the following:—

"1. Preliminary movements — deep breathing, inspiratory lifting, lifting the abdominal contents.

"2. Reflex stroking.

"3. Nerve compression.

"4. Vibration — deep vibration, lateral shaking, circular shaking.

"5. Percussion — tapping, spatting, hacking, beating, clapping.

"6. Deep kneading — digital kneading of the colon ; kneading of the colon with the fist ; kneading of the colon with the fingers and heel of the hand ; kneading of the colon with the thumb.

"7. Mass kneading of the abdominal contents.

"8. Rolling.

"9. Fulling (carefully).

"10. Petrissage, or muscle kneading.

"11. Stroking.

"12. Percussion of lumbar spine and sacrum.

"13. Hips-raising and knees-separating exercises."

Pelvic massage is also of unquestioned value in the treatment of a large variety of pelvic disorders, although it has little value unless employed in connection with abdominal massage, and is of no permanent efficiency unless supplemented by such exercise as will strengthen the abdominal muscles and the muscles of the trunk in general.

(To be continued.)

TRANSLATIONS AND ABSTRACTS

[THE articles in this department are prepared expressly for this journal.]

SOME PEDIATRICAL DON'TS.

SOME pediatrical don'ts of great value are given by Dr. W. A. Newman Dorland in *Medical Progress*. Among them are the following: —

Don't fall into the habit of ascribing the mother's fears and anxieties to a hysterical tendency which it is your duty to ignore. Listen to her, and profit by her suggestions.

Don't indulge in any sudden or violent movements while examining infants. Undue fright will thus be avoided.

Don't forget that the respiratory sounds, especially the inspiratory, are normally full and harsh in childhood. Hence the term "puerile" respiration.

Don't make a diagnosis of pulmonary cavity from the presence of the "cracked-pot sound" in children. This sound may be elicited in pleurisy and pneumonia as well.

Don't forget that tubercular disease of the peritoneum and mesenteric glands is a frequent occurrence in early childhood, and is usually indicated by great prominence of the abdomen.

Don't forget that the liver is relatively large in young children, and prominent below the ribs, even when there is no diseased condition present.

Don't diagnose the presence of intestinal parasites until one or more of the worms have been seen.

Don't fail to administer a purge of castor-oil on the first appearance of greenish-colored stools, especially if the season be hot and sultry.

Don't fail to suspect the onset of some grave disorder — scarlatina, pneumonia, or meningitis— when there is persistent vomiting.

Don't permit a woman suffering from grave constitutional disease — tuberculosis or syphilis— to nurse her child.

Don't permit a woman who has again become pregnant to continue nursing her infant.

Don't wean a child until after the twelfth month, if possible to avoid it.

Don't permit a child to nurse from the breast after the eighteenth month.

Don't wean a child during the summer season, unless absolutely unavoidable.

Don't give a baby which must be raised artificially, food preparations containing starch or its derivatives, glucose and dextrin.

Don't be alarmed at the great rapidity of the pulse. Any undue excitement or prolonged crying, or even a slight febrile excitation will give rise to a pulse out of all proportion to the gravity of the general condition. A rapid pulse during sleep, however, is of more grave significance.

Don't designate the symptoms of rheumatism by the popular term "growing pains." Serious heart disease in its earliest stage may thus be overlooked.

Don't forget that tubercular meningitis is usually preceded for weeks or months by a gradual but progressive loss of flesh.

Don't mistake the relatively greater development of the head in proportion to the shoulders for a commencing hydrocephalus. It is the natural condition in the early weeks of infancy.

Don't forget that the pain of incipient coxalgia is first complained of usually in the knee of the affected side.

Don't mistake the normal breath sounds which are heard in auscultating the fontanelles for the bruit which may be indicative of the onset of disease,— hydrocephalus or rickets.

Don't forget that inability to speak or to walk, and other evidences of backwardness in children, may be due to some form of mental disorder, either idiocy or imbecility.

Don't forget to examine the urine frequently throughout the stadium of scarlet fever. Nephritis is a common sequel to this disease, and its onset must be watched with jealous care.

Don't vaccinate an infant while it is suffering from eczema or tooth-rash.

Don't order large amounts of medicine. One or two ounces of a preparation will generally suffice.

Don't fail to remember that success in pediatrical practise necessarily depends largely upon acuteness of observation.

Typhoid Fever from Oysters.— The *Medical Week* for June 5 publishes the following abstract of a paper by Dr. Chantemesse, read before the Academy of Medicine, June 2, 1896: —

"I wish to call attention to a case

which proves that typhoid fever may be transmitted by oysters.

"In a small city of Hérault, Saint-André-de-Sangonis, in which there had been no case of typhoid fever for about a year, a merchant received on February 15 last a basket of oysters from Cette. These oysters were sold, and eaten raw by fourteen persons in the city, all of whom fell ill; whereas, those of the members of the six families in which these oysters had been consumed, who had not eaten any oysters, experienced no discomfort of any kind. Of the fourteen persons who fell ill, eight developed comparatively slight symptoms, such as gastric pain, vomiting, diarrhea, general malaise, etc.; in four others the stools were offensive and dysenteric in appearance. The last two, a girl of twenty and a young man of twenty-one, developed an exceptionally severe form of typhoid fever, and the former died.

"Having heard of this case, I bought from one of the principal oyster-dealers in Paris fresh oysters of various brands, ready to be delivered for consumption, all of them being alive and in good condition. On subjecting them to bacteriological examination, I found that every one of them contained a large number of germs, and in many the bacillus coli was present. Some of these living oysters were placed in sea-water which had purposely been infected with dejecta of typhoid-fever patients, and the bacilli of this disease. After twenty-four hours had elapsed, they were taken out of the water and kept for another twenty-four hours, representing the time usually required for the transport of these mollusks from the banks to the place of consumption. The oysters were then still alive, with no special odor and of good appearance.

"Bacteriological examination showed that the bodies of the animals and the water in which they had been kept, contained living coli bacilli and Eberth's bacillus, the epidemiological phenomena being thus confirmed by bacteriological evidence.

"The oysters probably become infected in the fattening ponds or reserves, which are usually situated on the seashore, near the mouths of rivers and canals, which convey microbes and dejecta of all kinds.

"Similar cases have been reported from other countries, in England by Cameron and Broadbent and in America by Conn, etc. In the latter country, cases of transmission of infectious diseases by oysters have become so numerous as to lead to a government inquiry on the subject."

The writer recommends government supervision of the fattening farms and reserves, suggesting that if contamination of these establishments cannot be prevented, then the oysters, before being forwarded to market, "might be shipped to the wild coasts of Belle Island and Brittany," to enable them to get rid of their impurities.

Boiled Milk.— Practical and every-day experience shows that when milk is boiled it is not only more easily digested, but that it has a nutritive value quite equal to the raw article. Experiments undertaken by Dr. C. Chamouin (*Canadian Lancet*), first with kittens and afterward with infants, showed after exhaustive and repeated trials that the kittens fed on boiled milk were "twice again as fat" as those supplied with the raw milk, and that the boiling of milk is the means of preventing the loss of innumerable lives by gastro-intestinal disease. Not only so, but it is more easily digested, and agrees with a far greater percentage of cases than unboiled milk.

There is ample authority for this view of the case, but certain points must be attended to, else the results will not be so favorable. First, all the vessels in which the milk is carried, boiled, and afterward kept, must be scrupulously clean. Nothing less than absolute freedom from dirt will suffice. Then the milk should never be boiled in an open vessel, but should have a close cover. Lastly, it need not be kept at 212° F. for more than twenty minutes. This is sufficient to sterilize and cook it, and no further boiling is necessary.

Blood Lavage in Surgical Infections.— P. Walton (*Belg. Med.*, July 16) reviews this question. Dastre and Loye have shown that intravenous injection of salt solution, amounting even to two thirds of the animal's weight, may be made without accident, provided the entry be slow and well regulated; at 0.7

per cent., or even 1.0 per cent., there is no toxic dose, but merely a toxic speed of introduction. Lejars, in a period of five days, injected 26 liters in a septicemic patient without any grave results. Michaux injects doses of 1000, 1500, and 2500 gr. a day. Péan, as well as Walton, regards these as maximum doses, to be reached without serious risks. Péan recommends subcutaneous injections in preference to intravenous. By these injections arterial tension is restored to normal, with frequency of heart beat lessened, and diuresis increased. Colson reports the following case : Male, aged 28, with articular abscess of right knee, temperature 40.7° C., tongue dry, delirium constant. Free incision, drainage and daily sublimate irrigations, a purgative, alcohol, quinine. After two days the temperature, which had fallen to 38.6°, rose to 40.2° C., tongue dry, pulse 130, skin dry and burning, urine scarcely a pint daily. Subcutaneous injection of one liter of 0.7 per cent. salt solution was followed two hours later by abundant urine. The next day the disquieting condition returned. Fresh injection of one liter was made, resulting in renewed improvement of symptoms. The injection was repeated for five days, and recovery ensued.

A Case of Antitoxin Poisoning.— Krückmann (*Therap. Monatschrifte*, June, 1896) had this experience : While injecting Behring's antitoxin solution No. 2, the patient coughed in his face ; he therefore injected a Koch's syringeful into his own left arm. He records his symptoms as follows : Half an hour later he was seized with violent stabbing pains in the head and a pricking sensation all down the back ; in another half-hour he had developed giddiness, ringing in the ears, precordial pain, and extreme prostration, so that he was hardly able to undress and go to bed ; temperature was 106° F. The arm became swollen, with loss of power in the digital extensors ; the skin became dry and purplish red, and ears much swollen ; the pulse was imperceptible ; great thirst ; and an extreme sense of oppression occurred in the abdomen, which was slightly relieved by frequent vomiting and defecation ; both vomit and stools were small in amount. There was much fear of impending death ; eventually a profuse diaphoresis came on, followed by peaceful sleep, nine hours after the injection. Next day he was almost well ; some dark urine was passed twenty-four hours after the injection. No albumin was present. Some swelling of the lower lip, with pain and redness of the tip of the tongue, took place a day later, but these soon passed away, and in three days convalescence was complete. The patient whom he was attending, although only half the author's weight, and having received twelve times as much serum, made an uninterrupted recovery.

Roentgen Rays the Cause of Dermatitis and Alopecia. — Maracuse (*Deut. Med. Woch.*, July 23, 1896) relates the case of a young man aged seventeen, on whom experiments were made with the rays once or twice each day for a period of four weeks. The sittings were from five to ten minutes each, but longer when the chest was being illuminated. During these experiments the body was clothed. The tube was never placed nearer than 25 cm. from the body ; at first, a slight diffuse redness, with some desquamation, was noticed on one half the face, more marked above the ear. The investigations were continued, and it was observed that there was a sharply defined patch above the ear, where the hair was very thin, and could be easily plucked out and without pain. In the back there was a large area over which the epidermis was completely separated. On the chest there was a similar area. The dermatitis resembled that caused by burns.

Implantation of the Urethra.— Sig. Burri, an Italian surgeon, reports the successful implantation of the urethra into the intestine. His first experiments were made upon dogs, but he has recently carried out the operation successfully upon human beings. In performing the operation, the urethra was first freed for a sufficient portion of its length, and the freed portion wound around a small bobbin or button to which it was slightly fastened by a silk suture. A small slit was then made in the intestine, the bobbin slipped through, and the slit sewed up. The bobbin was passed from one to two weeks after the operation.

Hydrotherapy. — Von Vogl (*Münch. Med. Woch.*, July 7, 1896) lays stress on the importance of instruction in this branch of treatment. He further states that hydrotherapy is of great value in the prevention of tuberculosis. It improves cardiac action, deepens breathing, and increases nutrition. It is also useful in both the early and advanced stages of pulmonary tuberculosis. The fever and cough are lessened by it, and the sleep and appetite improved. The acute infectious fevers may be treated by this means with great benefit to the patient. The author draws attention to the lessened mortality of typhoid fever since the use of the graduated bath has been introduced; he also calls attention to the comparative uselessness of medicinal antipyretics, intestinal antiseptics, etc. The bath treatment is harmless and effective in skilful hands. The proper administration, however, requires both theoretical knowledge and practical experience.

A Method of Detecting the Local Excretion of Sugar in the Organs.— Seelig has lately introduced (*Archio. f. Experiment Pathologie and Pharmacie*) a method for detecting and fixing sugar in the organs, in the very place of its excretion. Diabetes having been produced experimentally, in rabbits, by the administration of phloridzin, Seelig applies the phenyl-hydrazin test to the tissues themselves. A small portion of tissue is placed for fifteen minutes in a watery solution of phenyl-hydrazin and glacial acetic acid, previously warmed in a water-bath. It is then washed in water acidified with weak acetic acid, hardened in a ten-per-cent. formal solution, frozen, and cut into sections. These sections, in the case of the kidney, showed the characteristic yellow needles, indicating the presence of sugar, chiefly in the interstitial spaces between the uriniferous tubules. Seelig believes that his observations show that in glycosuria the sugar can be fixed where it is excreted just as can the albumin in albuminuria.

The Cause of Addison's Disease. — Since this malady was first clearly defined as a pathological entity, its cause has continued a mystery, but the problem of its causation seems to have been recently solved by a discovery made at the Pathological Institute of Berlin; viz., that a brown coloring matter known as pyrocatechin, or brenzcatechin, is secreted or formed by the suprarenal capsules. Its production is confined to the medullary substance of the glands. This peculiar substance quickly turns brown by contact with the air, which explains the brown pigment present in Addison's disease. Investigation of its properties shows the pyrocatechin to be a poison, which leads to the natural conclusion that it may be responsible, not only for the pigmentation present in Addison's disease, but for the other symptoms characteristic of this malady.

The Radical Cure of Hernia in Children.— Dr. Broca, of Paris, (*Lyons Medical Journal*) reports having performed the radical operation for the relief of hernia in children under fifteen years of age in four hundred and fifty cases. Only one death occurred in this series of cases, and that was due to septic peritonitis.

Iodoformin.— Professor Von Kölliker recommends a new preparation derived from iodoform and peraldehide, and known as iodoformin, as a substitute for iodoform. It is odorless; it can be sterilized by heat, and does not produce eczema from irritation of the tissues.

Cure for Chilblains.— Apply oil of eucalyptus, painting it on with a camel's-hair brush. It relieves the pain, and effects a cure in a very short time.

Massage in the Treatment of Muscular Rheumatism.— Graham (*Am. Journal Med. Sciences*, Vol. CVI, No. 2) points out that lumbago may arise from cold, strain, fatigue, or rheumatism. Its pathology is probably coagulation of the semi-fluid contractile muscular substance, and adhesion of muscular fibrils, so that motion gives rise to partial, irregular, and painful contractions. Recent cases of muscular rheumatism are almost invariably cured by massage. The author further states that the same result may be brought about, though not so rapidly, by rest, warmth, electricity, or the use of

salicylate of soda. Five different actions are claimed for massage by the author; namely, mechanical, thermal, electrical, nervous, and chemical, and suggests that when a case of apparent muscular rheumatism not only does not yield but does not remain improved after massage, the probability is that the case is one of neuritis, affecting the nerve fibers that supply the impaired muscles. This probability will be strengthened if the pain is uniform, affecting the same muscles on both sides; if it is worse at night, when at rest and warm in bed, and better when up and moving about. In the case of muscular rheumatism it would be aggravated by motion, and relieved by rest and warmth. Massage may thus be used as a means of diagnosis between muscular rheumatism and neuritis.

Oxygen Combined with Anesthetics.— The advantages of using anesthetics combined with oxygen gas are summed up in the following statements by Dr. J. D. Hart, of Brooklyn, in the *Journal of the American Medical Association*, June 20, 1896:—

1. There is seldom or never any period of excitement during the early administration of the anesthetic.

2. There is no nausea, vomiting, or cyanosis at any time while the anesthetic is being given, either in the early stage or during the operation, except in cases where brandy has been given before or during the operation.

3. The patients are more readily restored to consciousness, and make a more rapid recovery.

4. A much smaller amount of the anesthetic is required, usually only about one third the usual quantity, and seldom more than three and one-half ounces of ether per hour, and the same proportion of chloroform or A. C. E. mixture.

Cure of Tubercular Peritonitis by Laparotomy.— Gatti (*La Presse Medicale*, May, 1896) has been making some extended experiments upon guinea-pigs, dogs, and rabbits, for the purpose of determining the manner in which laparotomy cures peritonitis. He finds laparotomy of no service in these cases, at the beginning of the infection. Within about a month after the operation, the tubercles begin to diminish in size, and finally completely disappear. He attributes the disappearance of the tubercles to the bactericide action of a serous fluid which appears in the peritoneal cavity after the operation.

Hereditary Tuberculosis.— Can a child be born with tuberculosis as the result of direct transfer of the bacilli from the mother to the fetus? Bologuesi (*Thèse de Doct.*), after examining the placenta from thirteen tubercular women, and in several cases the organs of the fetus, for tubercle bacilli, concludes that the inheritance of tuberculosis is usually only a disposition, though the direct transfer does occasionally occur. The conditions which favor direct transfer are: First, a miliary tuberculosis of the mother, with tubercle bacilli in the blood; second, a placental tuberculosis, which has produced such lesions that the passage of the bacilli is no longer prevented; third, amniotic fluid containing bacilli, which can thus be swallowed by the fetus.

Acoustic Gymnastics.— The auditory nerves of people who have been born deaf are, in many cases, susceptible to a considerable degree of training. The exercise is begun by indicating to the patient certain vowels to be used. After several minutes' use of these vowels, called into the ear in a steady, loud voice, the patient often arrives at a differentiation of sound. Gradually the other vowels should be employed. Let this exercise be graded carefully, increasing the distance between teacher and scholar as rapidly as the latter can bear it.

At first the lessons must be very short (not more than ten minutes), and repeated two or three times each day; for the undeveloped power of hearing is very soon tired. Age seems to offer no obstacle to the success of this method, and very beneficial results are seen from it in cases of either congenital or acquired deafness.

Iodine in the Thyroid Gland.— E. Baumann has recently shown that the thyroid gland contains iodine. His experiments led him to suspect that in diseased conditions this gland contains less iodine than in a normal state.

Massage in the Treatment of Joint Fractures.— Our attention is drawn by Pello (*Archio. di Ortoped*, Aug. 13, farc 3, 1896) to the value of early massage and passive movements in cases of intra-articular fracture. He considers that the treatment by prolonged fixation delays recovery, and often leads to ankylosis. In those cases in which light massage was begun immediately after the fracture, the pain was greatly lessened. By increasing the amount of massage, and by diminishing the rigidity of the bandage daily, complete recoveries were made in each case, in a remarkably short time.

Cold Baths in Delirium Tremens. — M. Letulle (*La Presse Medicale*, 1896), after discussing the therapeutic value of the various drugs employed in delirium tremens, recognizes as the most efficient remedy complete immersion of the body in water of a temperature of 64.4° F. The head of the patient is at the same time kept cool by suitable applications. The bath is continued for eight to fifteen minutes, and should be repeated every two or three hours. Thus administered, it is highly sedative.

Relation of Ovaries to Sex.— Seligson states that if the right ovary is removed from a rabbit, the animal bears afterward only female young, while if the left ovary is removed, the animal bears only male young. In nineteen cases of tubal pregnancy, the fetus, when found upon the right side, was a male, when upon the left side, always a female.

Infiltration Method of Anesthesia. — The infiltration method of anesthesia, devised by Schleich, seems to have acquired a definite place in surgery. The amount of cocain, morphia, or codein is so small that 40 or 50 c. cm. of the solution may be used without running the risk of toxic effects. The solution must be aseptic and cold. Amputations of the forearm and other operations involving considerable time and extent of tissue, have been performed successfully by this method, which Schleich has used in over three thousand cases.

Function of the Suprarenal Capsule. — Dr. Charrin has recently reported to the Biological Society of Paris some observations made by Dr. Pettit which go to confirm what has previously been believed — that at least one of the functions of suprarenal capsules is the destruction of poisons, especially those produced by microbes.

Oxygen after Ether.— After the use of ether as an anesthetic, Dr. Landau (*Medical and Surgical Reporter*, July 4, 1896), of Berlin, has his patients inhale pure oxygen. As a result of this procedure, the dusky hue of the face disappears, the pulse becomes fuller and slower, and there is a more rapid recovery of consciousness. With the rarest exceptions, the patients do not suffer from the vomiting which is so distressing and dangerous an accompaniment of ether inhalation, and the pain is also greatly diminished.

Length of the Small Intestine.— Dr. Byron Robinson, on measuring the small intestine in eighty-seven males and twenty-six females, found its average length in the male to be five feet and three inches more than that of the average female. The longest small intestine observed in the male was thirty-three feet; the shortest, twelve feet and six inches. In the females the longest intestine was twenty-nine feet, and the shortest, eleven feet. The average for males was twenty-three feet and three inches; for females, eighteen feet.

Typhoid Antitoxin. — Beumer and Peiper (*British Medical Journal*) have recently reported experiments which show that immunity against typhoid fever may be established in guinea-pigs by a method analogous to that pursued in relation to diphtheria. It has not yet been applied to human beings.

To Preserve Surgical Instruments from Rust.— Marshall recommends dipping instruments, after cleansing, in a twenty per cent. solution of bicarbonate of soda and alcohol. It is stated that steel, iron, and copper instruments may be kept bright in this way.

BACTERIOLOGICAL NOTES.

[THE notes appearing in this department are abstracts or translations prepared expressly for MODERN MEDICINE AND BACTERIOLOGICAL REVIEW, from original sources.]

The Microbes of the Human Skin. — Dr. Paul Remlinger (*Medicine Moderne*) states that besides the varied saphrophytes, there are to be found on the skin numerous pathogenic micro-organisms, as staphylococci, streptococci, bacilli coli, etc.

Staphylococci are said to be the cause of many dermatoses, such as impetigo, ecthyma, boils, some folliculites, etc.

Dr. Remlinger suggests the probability of the numerous saphrophytes harbored by the skin as acting in a mechanical way, and thus preventing the perfect performance of the cutaneous functions.

Dr. Remlinger made experiments on fifty soldiers who were convalescing from non-cutaneous diseases. These patients, who had not been bathed for a given length of time, were ordered to take baths by immersion. The quantity of water put into the tubs was measured exactly, and the patients ordered to scrub vigorously every portion of their body. The lowest figure obtained for the number of microbes left in the bath was 85,000,000; the highest number was 1,212,000,000; the average number was 550,000,000. Generally speaking, the number of microbes was in direct proportion to the number of days the patient had been without bathing.

The Xerosis Bacillus. — J. Eyre (*Jom. Path. and Bach.*, 1096, iv, No. 1, pp. 54–63) gives the chief cultural and morphological points of distinction between the xerosis bacillus and the diphtheria bacillus as follows: —

1. After inoculation from the secretion upon blood serum, colonies of the xerosis bacillus do not open under thirty-six hours, while those of the diphtheria bacillus appear in sixteen to eighteen hours.

2. When grown on neutral bouillon or milk, the xerosis bacillus never gives rise to an acid reaction, while the diphtheria bacillus invariably does so.

3. When grown upon potato, the xerosis bacillus rapidly degenerates and dies, while the diphtheria bacillus grows with more vigor and to a greater size than on any other medium.

4. When grown upon ten per cent. gelatin, colonies of xerosis bacillus are not visible to the naked eye under forty-eight hours, while the diphtheria bacillus colonies can be recognized in twelve to fourteen hours.

5. The nature of the bouillon cultures of the xerosis bacillus is invariably innocuous when inoculated into the subcutaneous tissues of animals susceptible to the diphtheria bacillus.

As to the exact value of the xerosis bacillus, whether it be a non-virulent and slightly altered species of the diphtheria bacillus, or a totally separate and distinct bacillus, it is impossible to decide.

Löffler's Bacillus and Diphtheria. — Hennig, of Königsberg (*Charlotte*, N. C., *Med. Journal*, August, 1896) gives the results of an exact clinical and bacteriological examination of sixty-three cases in relation to Löffler's bacillus, as follows: Löffler's bacillus was found in thirty-five cases; in only some of these was the disease clinically true diphtheria; in others it was follicular sore throat or tonsillitis, and one was a case of pharyngitis apthora. In seven cases which later exhibited paralysis the bacillus was not found.

Hennig concludes from this that this microbe cannot be invariably the determining agent in Bretoneau's diphtheria, and that no treatment based on the hypothesis that it is so can be accepted as specific. He further states that the results from serumtherapy are by no means as brilliant as they seem; that many writers had obtained better results before antitoxin came into use, having cured all but three or four per cent. of their cases, including gangrenous and scarlatina cases. Hennig recommends the use of lime-water, and the permanent application of an ice cravat, etc.

Celluloid as a Substitute for Plaster of Paris. — Londerer and Kirsch (*Centralbl. für Chir.*, No. 29, 1896) find that celluloid chipped fine and dissolved in acetone (one part celluloid and four parts acetone by volume) makes an excellent substitute for plaster of Paris in ban-

dages and jackets. The solution is made in a close-stoppered bottle, and is frequently stirred to assist in the process. Gauze or crinoline bandages are used after each layer of bandage is applied; some of the celluloid is rubbed thoroughly into it, the hand being protected by an ordinary kid glove. From four to ten layers are applied and rubbed full of the celluloid mixture, according to the strength desired. This form of jacket weighs about one fourth as much as one of plaster of Paris; it is very elastic, is easily kept clean, and is impervious to moisture.

A New and Easy Method of Preparing Serum Agar-Agar.— Dr. A. A. Kanthack (*Lancet*) gives the following method of preparing serum agar-agar from ascitic, pleuritic, or hydrocele fluids. To every 100 c. cm. of serous exudation add 2 c. cm. of a ten-per-cent. solution of caustic potash; this converts the serum albumin into an alkali albumin, which is not precipitated on boiling. To this add 1.5 to two per cent. of agar-agar, previously soaked in acidulated water, and boil the mixture in a Koch's steamer until the agar-agar is well dissolved. It must now be filtered through a hot water-funnel. The filtrate should be perfectly clear. To the filtrate add four or five per cent. of glycerine. It may then be poured into test tubes and sterilized. Besides the glycerine, 0.5 to two per cent. of grape sugar may be added; this however generally renders the medium a little darker in color.

Before adding the caustic potash to the serous fluid, a small quantity of it should be boiled in a test tube. If it becomes practically solid, or contains large quantities of albumin, the fluid must be diluted with at least twice its bulk of distilled water; and then to every 100 c. cm. of the diluted fluid 2 c. cm. of KOH and 1.5 to two grams of agar-agar are to be added. The serous exudation, after the addition of the alkali, also forms a good liquid nutrient medium for bacteria.

Tuberculosis of Human Beings and of Fowls Identical.— The experiments of MM. Gilbert and Roger, recently published, show conclusively that the tuberculosis of human beings and of birds is one and the same disease. Observations made by Cadiot and Strauss also confirm this fact.

Persistence of the Loffler Bacillus in the Mucus of the Nasal Passages. —L'Gendre and Pochon (*Wiener Klin. Rundschau* X, No. 19) observed a child in whom the Löffler bacilli, at first virulent, later much less virulent, have persisted for fifteen months after diphtheria in the nasal mucous membrane. Repeated washings of the nasal and pharyngeal cavities with a five per cent. Labarraque's solution caused a temporary disappearance of the bacilli; but as soon as the irrigation was given up, the child became sickly again, lost its appetite, and the cultures from the nasal mucous membrane again showed the bacilli.

Germs in Breast Milk.— Writing in *Pediatrics*, Dr. Jacobi calls attention to the fact that breast milk frequently contains germs. He says: —

"M. Cohn and H. Neumann found germs in the healthy breast milk, even after the mammæ and nipples had been washed with alcohol and with solutions of corrosive sublimate. A. Palleske met with the staphylococcus pyogenes albus in one half of all healthy women; F. Honigmann in most of them; and H. Knochenstein in the mammæ of eight puerperal and nursing women. Evidently they had immigrated from outside; they proved innocuous. But who can doubt that, if the epithelium of the milk ducts had been morbid, there would have been a chance for mastitis, or if the staphylococcic milk had got into contact with a sour stomach or intestine, there would have been an opportunity for gastritis or enteritis."

The Transmission of Tuberculosis by a Brass Horn.— Dr. Addison S. Thayer, in the *Journal of Medicine and Science*, reports the cases of three young men who became infected with tuberculosis through the medium of a second-hand horn hired from a dealer. The three users of the horn in question were the only members of the band who did use it. These three patients are at the present time undergoing climatic treatment for tuberculosis.

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WHERE TO SPEND THE WINTER.

THIS is a question which many invalids are just now asking themselves, and in regard to which not a few physicians are being solicited for advice. It is coming to be the fashion with an increasing number of people to flee to some more genial clime on the first approach of cold weather in the Northern States. The first snowflakes have already fallen, and the prospect is that we shall have an earlier and a longer winter than usual, which will doubtless lead to the exodus of many thousands of invalids and semi-invalids from the Northern States to the South and other warmer regions.

The South affords many excellent invalid resorts. The mistake that invalids make in going south is in not going far enough south. If one undertakes to escape the cold Northern winter, he should take care to escape it altogether, for the reason that he makes no preparation for it. Those who remain North put on, as the cold weather approaches, the winter constitution which prepares them to resist the cold; and it is undeniable that there is so great an advantage in this constitutional change that it is a misfortune to lose it, if one is sufficiently vigorous to react to the stimulation of cold air, which is really one of the finest of all nature's tonics. The dense, pure air of the winter months is an inestimable blessing to those who are prepared to utilize it; but there is a multitude of persons, even in the Northern States, as well as other parts of the country, belonging to an unenviable class who might properly be termed the *morituri*; they have so little vital resistance that they are ready to die on almost no provocation. The flickering flame of life may be snuffed out by the cold blasts of the North; the brittle thread may be broken by the little extra strain resulting from a hard cold. Such persons, like wax figures, must be carefully protected from atmospheric changes. Having been treated all their lives like hothouse plants, they cannot endure wintry blasts or sudden changes of temperature. There are numerous places in the South which afford a haven for such persons during the winter months; and if they do not return too early in the spring, many may, by this annual migration, lengthen out their lives, who would be liable to succumb to pneumonia or a sharp attack of bronchitis before getting through the first month of a severe Northern winter.

There are other regions of country, as well as the South, which afford a safe haven for this class of invalids and valetudinarians. We are inclined to the opinion that too little attention has been given to the advantages of some portions of the Rocky Mountain region as a winter resort. Having enjoyed the pleasure of making several visits to Colorado and adjacent portions of the Rocky Mountain district during the winter months, we have become convinced both from our own experience and what we have learned from persons resident in that region, that for the great majority of invalids, Colorado presents unrivaled advantages as a winter resort, one of which is its almost perpetual sunshine. The vivifying, vitalizing influence of sunshine is undeniable; and a climate in which, as in Colorado, the invalid can be out of doors at least ninety-five days out of a hundred, enjoying the full benefit of uninterrupted sunshine accompanied by a

constant, invigorating breeze, must be recognized as possessing superior advantages for a large class of invalids.

Great benefit must also be derived by the chronic invalid from the high altitude and the crisp, dry air of the Rocky Mountain region. The increased diaphragmatic action, the accelerated heart activity, and the stimulating effects of a dry air upon the skin, necessarily result in a favorable modification of all the vital functions of the body, which is of the highest importance in all forms of chronic disease. The consumptive whose case is hopeless in other parts of the United States, recovers in this region, not because of any specific influence of the Colorado climate upon the bacillus tuberculosis, but because of the increased activity of the tissues and the heightened resistance of the body. The vital status of the invalid becomes so raised that he is able to cope successfully with the invading microbes, and thus in the battle between the body and the germs, the system gains the victory. It thus appears that the same conditions which render Colorado so valuable as a resort for consumptives, make it equally advantageous as a climate for chronic invalids of other classes, especially as a winter resort.

The great difficulty heretofore encountered in going to Colorado has been that invalids were wholly at the mercy of the hotels and boarding-houses, which are not usually prepared to supply the invalid with the various comforts so necessary to all persons in feeble health. This want, however, has at last been supplied. A well-equipped sanitarium has been established at Boulder, where invalids will find not only every possible comfort and convenience, but the added advantage of skilled and experienced physicians and all modern facilities for baths, massage, Swedish movements, electric-light baths, and other medical and hygienic agencies.

Those who care to go so far from home will also find Guadalajara, Mexico, a delightful spot, where, at the same altitude as Denver, or more than five thousand feet above the level of the sea, perpetual summer reigns. The same management which has been instrumental in developing the institution at Battle Creek, Mich., and that at Boulder, Colo., is erecting a sanitarium at Guadalajara, which will be completed within a few months. The institution is already in operation, the work at present being carried on in hired buildings which are very conveniently situated for the purpose.

Residents of the Northern States who go south to winter, and select locations having the same altitude as those in which they have lived in the North, simply secure the advantage of a prolonged summer. Upon returning to their homes in the spring, they continue under the relaxing, and, to some degree, debilitating, influence of warm weather. There being no change in altitude, there is practically no change in climate, and they lose the advantage of change of season, which is really equivalent to a climatic change. Thus those resident in the temperate zones, by a change to a more elevated region instead of going to a warmer climate and a low altitude, may obtain the advantage of climatic change without suffering the exposure to cold weather. It is true that the Rocky Mountain region is not entirely exempt from cold weather; once or twice during the winter season the thermometer runs down to zero or even below, and occasionally there is quite a fall of snow, but in two or three days the sun shines, the snow disappears, and summer weather reigns again for several weeks.

Those who may be interested in going to the Rocky Mountains for the winter will do well to investigate the merits of the Boulder region, for which purpose the Boulder Sanitarium will be glad to furnish a supply of interesting literature.

Those contemplating a visit to Mexico during the winter should not fail to visit

the quaint old city of Guadalajara, one of the most interesting cities of the republic. Mr. D. T. Jones, who has charge of the sanitarium there, will take pleasure in supplying any information which may be desired.

WERTHEIM'S METHOD OF RESTORING RETRODEVIATIONS OF THE UTERUS.

A WRITER in the *Journal of the American Medical Association* recently describes, under the above title, a new method of the operation of shortening the round ligaments. By this method the peritoneal cavity is opened from the vaginal surface, the uterus is pulled down, and the ligaments are doubled upon themselves and sewed together. It is stated that by this method the ligaments can be shortened from six to nine centimeters (from two and one-half to three and one-half inches). This operation was first performed by Wertheim in January, 1896, and described in the *Centralblatt für Gynäkologie* in February, since which time it has been performed about twenty-five times, and, it is claimed, with good results. The advantages claimed for it, over the so-called Alexander-Adams method, are : —

"1. It leaves no visible scar.

"2. The operation is easier to perform, the ligaments being larger at this point.

"3. The transverse cut in the vagina, sewed vertically, assists in anteverting the uterus.

"4. It allows perfect access to the pelvic viscera, thus permitting of minor repairing at the same sitting, when indicated.

"5. The operation is less dangerous."

Whatever the advantages of this operation may be over the Alexander-Adams operation, as first described by these operators, it certainly does not possess the advantages claimed, over the method of shortening the round ligaments which has been perfected in this country, and is now employed by a number of first-class operators. We will notice each one of the advantages claimed, contrasting them with the method of shortening the round ligaments by external incision: —

1. As regards the production of external scars : This is a matter of very small consequence, and amounts to nothing when it is understood that the operation of shortening the round ligaments may be performed by an incision not more than half an inch in length, in any ordinary subject, and the incision is made below the upper border of the area naturally covered by hair, so that it is completely concealed. Moreover, as the wound always heals by immediate union when the operation is properly performed, the scar, at the most, is merely a faint white line, and, in some cases, even this disappears.

2. The operation of shortening the round ligaments, when properly performed, secures the ligament at a point just below its exit from the internal ring, where it is always large enough to be found easily, if one knows where to look for it. Some little dexterity is required for picking up the round ligament quickly, but it is no more difficult to find than to find one of the muscles of the eye in performing an operation for strabismus, provided the operation is done in a similar manner, which is the proper method. The writer has rarely occupied more than seven or eight minutes in performing this operation on both sides, and has frequently completed the operation for both sides in five minutes. It certainly will not be possible for the most skillful operator to perform the operation by Wertheim's method in anything like so short a time.

3. The transverse cut in the vagina sewed vertically will assist in anteverting the uterus only when the uterus is included in the closing sutures. It has been clearly shown that anterior vaginal fixation, as well as ventro-fixation, is

highly conducive to the occurrence of complications in childbirth requiring operative interference.

4. If there is necessity for examining the pelvic viscera, it is much better to make a ventral incision so that a more thorough examination can be made and the diseased parts removed, if required. "Minor repairs" can be much more easily made through a ventral opening than through a vaginal incision.

5. We are amazed at the claim that Wertheim's operation, as described, is less dangerous than the operation of shortening the round ligaments. It is possible that the operation of shortening the round ligaments might be performed in such a careless or bungling manner that a patient's life would be jeopardized, but after performing the operation in nearly five hundred cases, the writer is justified in saying that the operation of shortening the round ligaments by external incision is free from danger, if performed in a skilful and aseptic manner. All of our cases have made excellent recoveries, and none have at any time been in a condition even suggesting a fatal result.

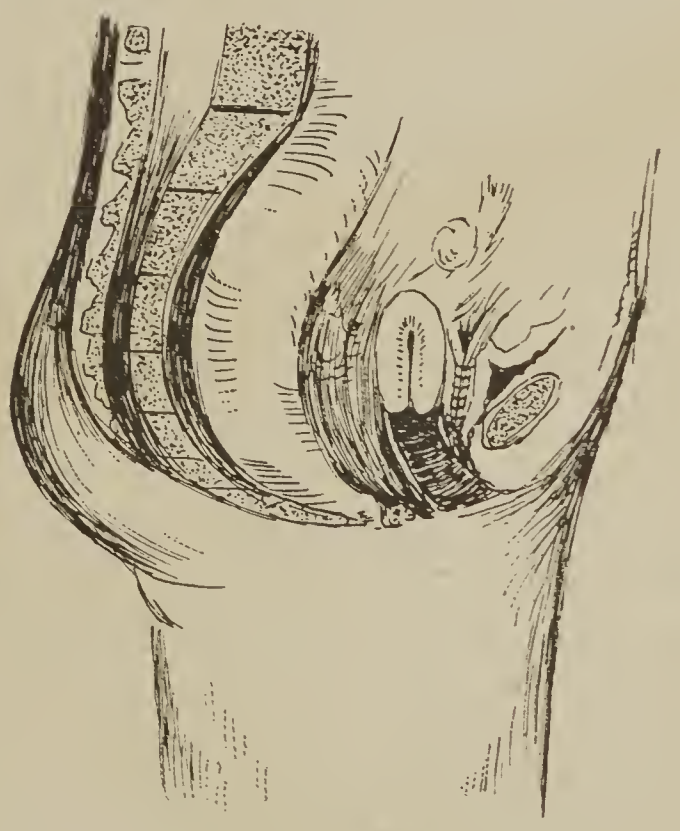
We see no advantage whatever in this new method of shortening the round ligaments. The operation must be much more difficult and more hazardous, as well as much less thoroughgoing and successful than the operation of shortening the round ligaments which the author has several times described, and which has proved successful in other hands as well as his own.

There are three decided objections which may be urged against Wertheim's method, besides those which have been already mentioned, any one of which is sufficient to condemn it: —

1. The operation does not admit of sufficient shortening of the ligaments; a shortening of from two and one-half to three and one-half inches is rarely sufficient to do the patient any good. The uterus should be drawn as far forward as possible, which requires a shortening of the ligaments to the amount of from four to seven inches; from five to six inches is, in our experience, the average amount required.

2. The method of shortening the ligament by folding it upon itself and introducing sutures, first suggested by Dr. Dudley, of New York, has long ago proved to be inefficient. The coapted peritoneal surfaces, if they become adherent by inflammation, may separate later, through absorption. If this result occurs, the ligament is certain to return, sooner or later, to its original length, through the stretching of the peritoneum, a structure which has great capacity for extension, as we have often seen in the bands, and as is frequently shown by the great length of bands often encountered in operations for the removal of abdominal tumors.

3. It is impossible to lift the uterus sufficiently far forward by this operation to accomplish any satisfactory results. This is clearly shown by the author's cut



Position of the Uterus after Wertheim's Operation of Shortening the Ligaments.

showing the position of the uterus when the operation is completed, and which is herewith reproduced. The uterus, as here shown, is beyond the first degree of retroversion. The pouch in front of it will certainly be filled with small intestines,

which will gradually force the uterus down into its former position. The operation of shortening the round ligaments does no good unless the uterus is drawn forward sufficiently to lie well against the bladder, so that the intestines lie wholly behind it. We quite agree with Dr. Alexander, that the reason why physicians are dissatisfied with the method of operation with which his name is connected, is, that "they do not get the knack of doing it." Dr. Alexander originally performed the operation by cutting down upon the external ring. This operation is very difficult in women who have small round ligaments, which is the case with most of our American women.

Seven or eight years ago the writer published his method of cutting down upon the internal ring, and drawing the ligament up with a hook passed through a small opening in the roof of the canal and braiding the loop of the ligament into the tendon of the external oblique, fastening it in place by two closing sutures of silkworm gut passed through all the tissues of the ligament itself at several points. We have performed the operation by this method in nearly five hundred cases, and with most satisfactory results in ninety-five per cent. of the cases. Pregnancy has occurred in a considerable number of these cases, and with no unfavorable results which could be in any way attributed to the operation.

It is interesting to note the fact that some new surgical method of curing retro-deviation of the uterus is being continually brought forward. This fact is sufficient evidence that the method of ventro-fixation, which certainly is sufficiently easy of performance, is not satisfactory, further evidence of which is afforded by Miländer's report (*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd XXXII, Hft. 3), which shows that in fifty-four cases of labor at full term, after ventro-fixation, eleven required operative interference, as follows: Four delivered by forceps; four by turning; one by extraction; and two by Cæsarian section.

Toxicity of the Gastric Juice in Epileptics.—Since the publication of Bouchard's memorable work, "Les Auto-Intoxications," many investigations have been made which point very strongly toward the toxic origin of epileptic paroxysms, at least in cases of idiopathic epilepsy. Numerous examinations of urine have been made in epileptics, with the result that a high toxicity has been found. In one case investigated by the writer, the toxicity of the urine of a patient just recovering from a succession of epileptic paroxysms was found to be more than double the normal; the animal injected with it died in most powerful epileptic form convulsions.

Augustini has recently investigated the toxicity of the gastric juice in a case of epilepsy. He found that the gastric juice of the epileptic, when injected into the abdomen of a rabbit, proved fatal, with general toxic symptoms and chronic convulsions. This was found to be especially true when the gastric juice was obtained immediately before or after an attack. Normal gastric juice was found to produce no such evil effects. Augustini concludes from these experiments that systematic lavage, or washing of the stomach, and disinfection of the intestines by an aseptic dietary and other appropriate measures, are indicated in all cases of epilepsy.

These observations agree entirely with the clinical observations made many years ago, and specialists in this class of disorders have long taught that abstinence from flesh-eating was essential in the treatment of epilepsy. Bouchard showed that the toxicity of the intestinal contents is doubled when meat enters largely into the dietary. By withholding flesh food, and confining the patient to a diet of fruits, grains, and other vegetable

products, with a moderate allowance of milk, the alimentary canal may be rendered comparatively free from germs and the toxins which are the result of bacterial growth.

These facts carry with them the suggestion that the septic condition of the alimentary canal resulting from the use of flesh food may be responsible for many other nervous disorders besides epilepsy, and that a vegetarian regimen, as ordered by the late Professor Dujardin-Beaumetz, of Paris, may be advantageously adopted in a large class of chronic disorders.

The Pan-American Medical Congress.— Through the enterprising efforts of Dr. Reed, of Cincinnati, Dr. Montgomery, of Chicago, and others, very excellent arrangements have been perfected for the Pan-American Medical Congress to be held in the City of Mexico next month; and no doubt a large number of eminent American physicians will make the journey to the capital city of our neighbor republic. A splendid program has been provided, and there is every reason to believe that our Mexican neighbors will give their confreres of the United States a most liberal and cordial reception. On the occasion of the meeting of the American Public Health Association in the City of Mexico a few years ago, the American members were greatly surprised to meet a number of distinguished Mexican physicians at the border, who had been sent as delegates to pilot them from the United States to their headquarters in the City of Mexico. President Diaz had not forgotten to show especial courtesy to the visiting members by instructing the Custom House officers to make no inspection of their baggage.

Those who desire information respecting transportation, etc., should address L. H. Montgomery, M. D., Central Music Hall, Chicago, Ill.

Reviews.

A Study of the Operative Treatment for Loss of Nerve Substance in Peripheral Nerves. — By G. Carl Huber, M. D., assistant professor of histology and embryology in the University of Michigan. Ginn &. Co., Boston.

This paper is a most exhaustive study of these subjects, to which the author has devoted many months of painstaking research. Dr. Huber has rendered great service to reparative surgery in demonstrating the feasibility of restorative operations upon injured nerves and other bodily structures. Briefly stated, the general conclusions of his research are as follows: —

1. That it is possible to restore the functions of a divided nerve by introducing a segment taken from some other nerve trunk, and suturing the ends.

2. The segment introduced acts only as a guide to the down-growing axis cylinders. The axis cylinders of the implanted segment disappear by degeneration, leaving empty the sheath of Schwann.

3. This grafting may be employed either as a primary or a secondary operation.

4. The results from an implanted segment are better than from a union, by flaps, of the divided nerve.

5. It is not possible to obtain regeneration of the peripheral part of the divided nerve by connecting it with an uninjured nerve trunk.

The work is illustrated by several beautiful lithographs, which were executed in Frankfort especially for this work, and are of great service in making clear the interesting facts presented in the text.

Chronological Notes on the Visitations of the Plague in Lancashire and Cheshire. — By William E. A. Axon, Manchester, England. Published by Richard Gill, Tib Lane, Cross Street, London.

This little pamphlet is a model of careful historical research. A brief account is given of every outbreak of plague in these counties between the years 1349 and 1665. Of the earliest part of this period, the author says: "Hecker regards 1347—50 as the period of the Black Death, and estimates that the number of deaths in Europe from it was twenty-five million. The moral effects of the Black Death were notable. Fear killed many whom the disease might have spared. Evil-doers were seized with repentance, or at least with dread."

It is stated that about one third of all the inhabitants died at this visitation, and others that followed were scarcely less fatal in their results. The work is chiefly made up of extracts from the records of the times, which are of great interest on account

of the quaint, old-fashioned language employed, and the incidental insight into the inside of the social and domestic life of those times, as well as for the medical and statistical information afforded. Mr. Axon has enjoyed unusual facilities for the work which he has undertaken, through the opportunities afforded him for a wide acquaintance with the early English literature while acting for many years as librarian of the Manchester city library.

THE ETIOLOGY AND PATHOLOGY OF GASTRITIS, UPON WHICH IS BASED RATIONAL THERAPEUTICS. — By Fenton B. Turck, M. D., Chicago, Ill.

Dr. Turck's name has become well known through his elaborate investigation of the pathology of gastritis. The aim of this paper is to present the practical methods of dealing with this disease. The author takes the position that the chief cause of gastro-intestinal disorders is "errors of diet." He denounces cheese and sausage because of the saprophytic germs which these unwholesome foods contain. He denounces pepper, mustard, and spices as powerful gastric irritants, together with alcoholic drinks and beverages containing acids, salts, tartrates, lactates, etc. Sherry wine, champagne, beer, and port wine are shown to be injurious, not only on account of the alcohol which they contain, and which the author insists is deleterious in any form, but because of the yeast germs, acids, and salts which are found in them. Hasty eating, which is encouraged by the lunch-counter and the railroad restaurant, the author declares to be "a menace to public health." Dr. Turck declares that "New England has furnished a race of dyspeptics through the baked pork and beans, hot biscuit, doughnuts, and mince-pies, washed down with ice-water, which go to make up the New England dinner, and which prepare the way for the ravages of the 'bacillus gastricus.'"

The author cites a number of cases illustrative of his conclusions and his methods, which, for the most part, must be commended as eminently rational. One of the most important of these is the hot bath, starting at a temperature of 100° F., and running up to from 105° to 115° F., the bath to be followed, when the surface has become reddened, by a rubbing of the skin with ice. We think a caution should be uttered with reference to this bath, which is one of the most vigorous, we might say violent, of therapeutic measures. First, a temperature of 115° F. is a little too high. Few patients can endure this temperature unless they have been gradually worked up to it through a series of baths, and no particular advantage is gained by so great heat. A temperature of 120° is positively dangerous to life, and even 115° approaches rather too near the danger point. Good results can be obtained by a temperature of from 105° to 108.° We have found a cold spray or a needle bath quite as effective as rubbing the surface with ice; it is, indeed, more effective, for the reason that the application being made upon the whole surface at once, a stronger impression is produced.

REPORT OF THE COMMITTEE ON HEALTH RESORTS. — An extract from Vol. XI of the Transactions of the American Climatological Association.

This little paper contains a large amount of excellent information concerning health resorts in various States. On glancing through the report, however, it is impossible to avoid the impression that a considerable amount of partiality has been shown, since some very well-known resorts, such as Clifton Springs, N. Y., and others equally well known, are not even mentioned. It is especially surprising that the State of Michigan, with its long list of splendid summer resorts, well adapted to nearly all classes of invalids, including those who are suffering from hay fever, for the relief of which Petoskey, Mackinac Island, and Traverse City are almost world-famous, is not even mentioned. Wisconsin, with its numerous very delightful lake-side resorts, is also wholly ignored. Jacksonville and St. Augustine are not noticed among Florida resorts, although mention is made of Winter Park, in Tampa. Asheville and Aikin, N. C., are overlooked, though some smaller and less important places are mentioned. Information concerning these places is readily accessible, and we cannot understand what motive has prompted the committee to omit them from a report which, if complete and impartial, would be of great value to the profession.

TRANSACTIONS OF THE AMERICAN MICROSCOPICAL SOCIETY. — This is a report of the eighteenth annual meeting of this excellent society which has done so much valuable scientific work. The volume is fully equal to any of its predecessors, and contains a great amount of exceedingly valuable matter, histological and biological, as well as microscopical. The plates with which the book is illustrated are excellent. The secretary, Dr. W. C. Krauss, Buffalo, N. Y., certainly deserves much credit for the great amount of labor which he has devoted to this report, and for the admirable form in which it appears.

APPLICATION OF THE GALVANO-CAUTERY IN THE NASAL PASSAGES. — By J. W. Gleitsmann, M. D., New York.

In this paper the author defends the use of the galvano-cautery and snare in the removal of turbinated hypertrophies and similar growths in the nose. He recommends the application of trichloracetic acid after the application of the cautery.

The Battle Creek Sanitarium
LABORATORY OF HYGIENE.

J. H. KELLOGG, M. D., Superintendent.
GEO. H. HEALD, M. D., Bacteriologist.
HOWARD RAND, M. D., Urinalist.
A. B. OLSEN, B. S., M. D., Pathologist.
W. A. GEORGE, M. D., Chemist.

Monthly Résumé of Work Done.

REPORT OF EXAMINATION OF BLOOD.

FOR SEPTEMBER.

Blood Count.	Men.	Women.	Total.
Over 5,000,000	3		3
Between 4,500,000 and 5,000,000	61	18	79
" 4,000,000 " 4,500,000	11	39	50
" 3,500,000 " 4,000,000	5	6	11
" 3,000,000 " 3,500,000	2	3	5
" 2,500,000 " 3,000,000	2		2
Totals	84	66	150

Hemoglobin.	Men.	Women.	Total.
100 per cent.	46	34	80
93 " "	27	20	47
85 " "	7	10	17
79 " "	1	1	2
64 " "	2	1	3
57 " "	1	0	1
Totals	84	66	150

Gastric Laboratory Report for September.—Regular analyses, 140; experimental, 20; total, 160. The regular cases were from the following States and countries: Michigan, 35; Illinois, 29; Indiana, 13; Ohio, 10; Iowa, 7; Minnesota, 6; Wisconsin, 5; Pennsylvania, 4; Missouri, 4; Tennessee, 3; Canada, 3; Massachusetts, 3; South Dakota, 3; Texas, 2; Kansas, 1; New York, 1; South Carolina, 1; Arkansas, 1; North Carolina, 1; West Virginia, 1; Mississippi, 1; Florida, 1; North Dakota, 1; Alabama, 1; Virginia, 1; Louisiana, 1; Australia, 1. Total, 140.

Sputum Examinations for September.—There were 33 examinations made, 22 of which were new cases. Tubercle bacilli were found in 8 cases, 7 of which were new.

Urinary Laboratory Report for September.—Number of specimens examined, 322; number of cases, 217. Number of cases in which albumin was found, 33; casts, 6; pus, 52; blood, 14; sugar, 3; bile, 6. Number of specimens tested for toxicity, 12; number of cases tested for toxicity, 12.

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We are now able to relieve a large number of persons suffering from faulty digestion of starch, and can aid our patients, during convalescence, so that they speedily regain their weight and strength by the ingestion of large quantities of the heretofore indigestible, but nevertheless very necessary, starchy foods. We trust that the readers of the *Gazette* will at once give this interesting ferment a thorough trial, administering it in the dose of from 1 to 5 grains, which is best given in powder, or, if the patient objects to the powder, in capsule.—*The Therapeutic Gazette.*

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PUBLISHERS' DEPARTMENT.

A FOOD CURE FOR INDIGESTION.— Physicians are all the time looking for remedies for indigestion. Every general practitioner has under his care a larger or smaller number of patients who are a constant source of annoyance and distress to him, because of the obstinacy of their digestive disorders. Hydrochloric acid, pepsin, pancreatin, malt, all sorts of "stomach tonics," digestants, peptones, peptonoids, etc., have been tried, and often with apparent temporary relief; but sooner or later the chronic sufferer gets back into the old ruts and declares that nothing helps him. The dietary has been revised again and again. He has been recommended to try the milk diet and the meat diet; and perhaps, in utter disgust and despair, the patient has at last decided that no diet will agree with him, and that it makes no difference what he eats; and so the doctor has finally repeated to his patient the advice of the late Dr. Austin Flint, who said to his patients suffering from indigestion, when their impatient, almost discouraged questions, "What shall I eat?" "How much shall I eat?" and "When shall I eat?" came pouring in upon him, "Eat what you like, eat as much as you like, and eat when you are hungry."

This great confusion respecting the treatment and dietetic management of persons suffering from disordered digestion has arisen from a lack of suitable means for making a thoroughly scientific study of this large class of disorders. The recent advances in physiological chemistry and in methods of investigating disorders of digestion have put the profession in possession of data whereby most of the mystery has been cleared up. We are now able to study the work of the stomach, the products of the work, and the stomach itself — its position, its dimensions, etc.— with the same degree of accuracy with which the eyes, nose, throat, and other organs have heretofore been studied. The rapid advancement which these improved methods of diagnosis have enabled us to make within the last few years has at last delivered the whole subject of the treatment of this class of maladies from the rut of empiricism, and placed it upon a scientific basis.

One of the most interesting and practical results obtained through these modern researches is the discovery of the fact that the administration of digestive ferments and the various so-called "stomach tonics" is practically useless, and that digestive disorders must be almost altogether managed, and may be most successfully treated, by the exact adaptation of diet to the various conditions which are revealed by an accurate investigation of the organ and its functions; in other words, the profession are discovering that materia alimentaria is a matter of immensely greater importance than materia medica in the management of disorders of digestion.

An evidence of progress in this direction is to be found in the growing demand for graham flour, whole-wheat flours, cracked wheat, pearled wheat, rolled wheat, and similar preparations. All of these preparations, however, possess certain disadvantages. Most of them are open to the criticism that the bran, or outer covering of the wheat, is presented in the form of large, sharp flakes, which are quite incapable of digestion, and are likely to irritate a sensitive stomach, or to accumulate in the dependent portions of prolapsed and dilated stomachs. Those who have had a large experience in the employment of lavage are familiar with the fact that not infrequently a considerable amount of rubbish of this sort is removed twenty-four or even forty-eight hours after it has been swallowed.

A vast number of new food preparations of various sorts have within the last few years been placed upon the market. Unfortunately a large share of these preparations are the product of commercial interest and enterprise solely, whatever virtue they possess being derived from the brilliant and alluring descriptions in the advertising matter prepared to amuse the reader, rather than from any intrinsic merit of the foods.

Another objection to the use of these preparations of wheat has been the fact that they are usually presented in the form of mush or other soft preparations, which, when eaten, do not call forth the activity of the salivary glands, so that food requiring the presence of a large amount of starch-digesting saliva is swallowed with the admixture of only a very small amount of this important digestive agent. It may be added, also, that in a great majority of farinaceous preparations, whether made from wheat or from other grains, the starch is imperfectly cooked. This imperfect cooking has been encouraged by the fictitious claims made by many manufacturers of cereal products to the effect that their particular products are already cooked by steam or otherwise, and can be prepared for use in ten to fifteen minutes, or even a shorter time. Experience has shown that farinaceous foods, especially whole-wheat preparations, require very long cooking, from three to five hours being none too long for ordinary whole-meal foods. Experiments in our schools of scientific cookery have also developed the fact that grain preparations are improved by a second cooking.

Careful investigations of the chemistry of digestion have shown that the inability to digest starch is an exceedingly prevalent condition among dyspeptics; hence there has been a growing demand for a food or foods which should combine the element of palatableness with the two essential qualities,— dryness, necessitating mastication, and thorough cooking, securing easy and complete digestion. The food which has heretofore most nearly met the required conditions has been zwieback, or twice-baked bread, made famous by its large employment at Carlsbad, the world-renowned resort for disordered stomachs. But zwieback is by no means altogether palatable, and does not agree with many delicate stomachs because of the long time required for the solution of the flinty masses, which often resist the most patient and vigorous efforts at mastication.

A few of the new food preparations, however, are the product of long and patient scientific inquiry, instituted for the purpose of meeting a patent need. One of these is a most unique food to which the inventor has given the name "Granose," in which are to be found all the elements of palatableness, dryness, and thorough cooking, reaching even to the stage of heat digestion by the conversion of starch into dextrin, thus securing an abundant flow of saliva through the necessity of thorough mastication, and ready digestibility in the stomach as the result of complete disintegration.

Granose consists of the entire wheat, spread out by means of powerful machinery working under immense pressure, into thin, translucent, almost transparent flakes, which are baked in an oven

until slightly brown. When placed in the mouth, these flakes are found to have a delicate, tasty flavor, and a delicious crispness which yields very quickly to the pressure of the teeth, reducing the flakes almost instantly to fine particles. These particles are at once moistened by an abundant flow of saliva, which, by contact with the dry flakes, is made to pour out into the mouth from the salivary glands. Experiments have shown that the salivary glands are stimulated to greater activity by the element of dryness in the food than by any other means.

To chew a bit of zwieback or a hard cracker for a length of time sufficient to reduce it to a pulpy or pasty condition, is a task which a person may, by degrees, be trained to accomplish from a sense of duty or a dread of dire consequences, but can never be said to afford any real pleasure or satisfaction. The delicate crispness of granose, however, affords that same sort of gustatory satisfaction to the eater which so often leads one to delight his palate with tart pie-crust or Saratoga chips at the risk of a sleepless night or a bilious attack next day. To chew zwieback, bread-crust, or hard-tack, is to do penance. Granose affords real gustatory satisfaction, thus combining profit with pleasure, and preparing the way for good digestion.

Granose has already proved a boon to thousands of weak stomachs. Within a few months the demand for this new product has grown, by the mere force of its intrinsic merit, from a few hundred pounds weekly, to several tons, and is now being shipped by the carload to New York, Boston, and other great centers. It is unquestionably the most perfect of all cereal foods, and when employed as the chief element of diet, may be relied upon to cure most forms of indigestion. Biliousness, "heartburn," sour stomach, constipation, gastric catarrh, and a great variety of other functional disorders of the stomach, yield under this diet. It is just the thing for a person suffering from dilatation or prolapse of the stomach. It is equally useful in both hypopepsia, and hyperpepsia, and is, in fact, as near a dietetic panacea as is likely ever to be produced. It should be used as a substitute for all other kinds of bread. It may be had either in the form of flakes, or lightly pressed into cakes. In either form it is universally liked, and is not only pronounced delicious at the first taste, but comes to be an absolute necessity to those who have once become acquainted with it. For circulars relating to this most valuable of all health foods, address Battle Creek Sanitarium Health Food Co., Battle Creek, Mich.

WE announced, some time ago, as in preparation, a translation of "Traite des Maladies de L'Estomac," by Debove and Rémond, and are glad to say that the work is progressing, and we hope soon to announce it as in press. MM. Debove and Rémond have announced the publication of the book by the Modern Medicine Publishing Co., and we predict for it an extended sale. The work is one which ought to be in the hands of every one interested in the disorders of digestion.

THE Pan-American Medical Congress, which will meet before the publication of our next issue, promises to be a great success. Our Mexican confrères have been exceedingly active in making preparations for the congress, and they are certain to do their utmost to make it a very enjoyable and profitable occasion.

WE have recently had the pleasure of examining and testing a bicycle which has been especially designed for use by invalids. It is known as the Richmond Wheel, and possesses, as a peculiar and characteristic feature, a spring and an air-cushion in that portion of the frame which supports the seat. By this ingenious arrangement the rider is entirely relieved of the unpleasant jars and jolts to which he is subjected when riding upon the ordinary bicycle. Our experience with the Richmond has convinced us that it is vastly superior to any other wheel made, as regards ease and comfort to be experienced while riding it.

We have subjected this wheel to the most severe tests, and after riding it almost daily for a month in passing to and fro from our residence to our office, and taking occasionally a longer trip, we should consider it a hardship to be compelled to ride any other wheel. We are glad to be able to say this in the interests of those who are looking for the right wheel to recommend to invalids, and we are also glad to be able to add that what we have said in favor of the Richmond is without the knowledge of the manufacturers of the wheel, and that we receive no compensation for saying it.

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DIRECTORY OF SANITARIUMS.

THE following institutions are conducted under the same general management as the Sanitarium at Battle Creek, Mich., which has long been known as the most thoroughly equipped sanitary establishment in the United States. The same rational and physiological principles relative to the treatment of disease are recognized at these institutions as at the Battle Creek Sanitarium, and they are conducted on the same general plan. Both medical and surgical cases are received at all of them. Each one possesses special advantages due to locality or other characteristic features.

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THIS institution is beautifully located at the head of the Napa Valley. It is a fine large building, with excellent appointments, and all facilities required for the treatment of chronic invalids of all classes. It has also a record for a large amount of successful surgical work. There are several able physicians connected with the institution. The scenery is delightful, the climate salubrious; the water supply, which is furnished by mountain springs, is pure and abundant. Hundreds of cases of diseases generally considered incurable have been successfully treated at this excellent institution during the twenty years of its existence.

CHICAGO SANITARIUM,

28 COLLEGE PLACE, CHICAGO, ILL.

THIS institution is a branch of the Battle Creek (Mich.) Sanitarium. It is favorably located near Lake Michigan, in the southern portion of the city, close to Cottage Grove avenue, and facing the old Baptist University grounds. A few patients are accommodated. Facilities are afforded for hydrotherapy, and the application of massage, electricity, Swedish movements, and other rational measures of treatment.

NEBRASKA SANITARIUM,

COLLEGE VIEW (LINCOLN), NEB.

A. R. HENRY, President.

A. N. LOPER, M. D., Superintendent.

COLLEGE VIEW is a thriving village located in the suburbs of Lincoln, with which it is connected by an electric railway. College View is the seat of Union College, one of the leading educational institutions of the West. The Sanitarium has a beautiful location, facing the spacious college grounds, and gives its guests the advantages of a quiet, homelike place, combined with appropriate and thoroughly rational treatment. It has a full equipment of excellent nurses, and has already won for itself an enviable reputation in the West.

PORTLAND SANITARIUM,

PORTLAND, ORE.

L. J. BELKNAP, M. D., Superintendent.

THIS institution is beautifully located in the center of the city, in a fine building with spacious grounds; and although it has been in operation scarcely more than a year, it already has a good patronage, and has evidently entered upon a successful career. Facilities are provided for the dietetic and medical treatment of chronic ailments of all kinds. The advantages for treatment include, in addition to various forms of hydrotherapy, electric-light baths, and apparatus for the application of electricity in its various useful forms, manual Swedish movements and massage.

COLORADO SANITARIUM,

BOULDER. COLO.

W. H. RILEY, M. D., Superintendent.

THIS institution is located on a beautiful site of one hundred acres, including a fine mountain peak, and commanding extensive landscape views which, for variety and beauty, can hardly be equaled. The site adjoins the thriving city of Boulder, and is about one hour's ride by rail from Denver, the streets and principal buildings of which are easily discernible from the peaks around Boulder. The equipment consists of a large building especially erected for the purpose, two fine cottages, and every appliance for the application of hydrotherapy, and for the special treatment of pulmonary ailments, to be found in the best establishments of like character. Particular attention is given to the dietetic treatment of patients, and to systematic exercise, in addition to the special treatment for specific ailments. The altitude is between five and six thousand

Directory of Sanitariums.—Continued.

feet, just that which has been determined to be the best for pulmonary troubles. Though but a few months have elapsed since the work of this institution was fairly begun, a large number of persons suffering from pulmonary tuberculosis have already been cured, and are now rejoicing in sound health. The rational hygienic treatment, with the climatic advantages, has proved effective in the cure of cases which, without the combined advantages of these superior measures, must certainly have succumbed to the disease.

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THIS institution, established in 1894, is the first and still the only one of the kind in Mexico. It affords, in addition to the unsurpassed climatic advantages of the region in which it is located, facilities for the employment of hydrotherapy, electricity, massage, manual Swedish movements, and dietetics, in the treatment of all forms of chronic disease. The altitude is the same as that of Denver,—from five to six thousand feet. Guadalajara has the advantage of a climate more nearly uniform than any other with which we are acquainted. Located in the tropics, it enjoys almost perpetual sunshine, while its altitude is such as to prevent excessive heat. There is probably no better place on earth for a pulmonary invalid. It is only necessary that the advantages of this institution should become known to secure for it extensive patronage.

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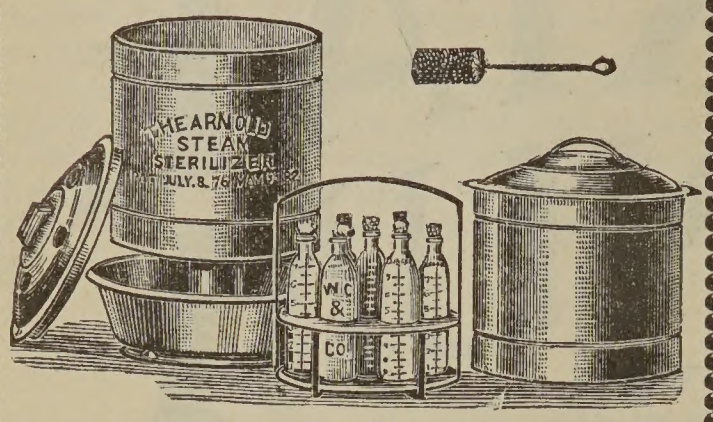

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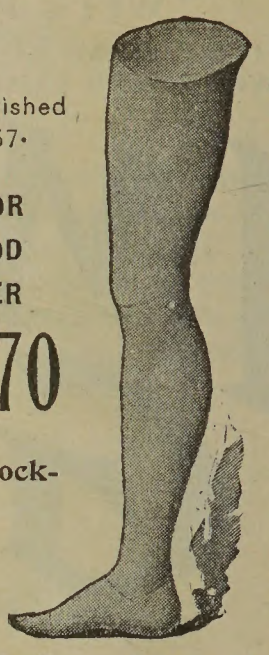

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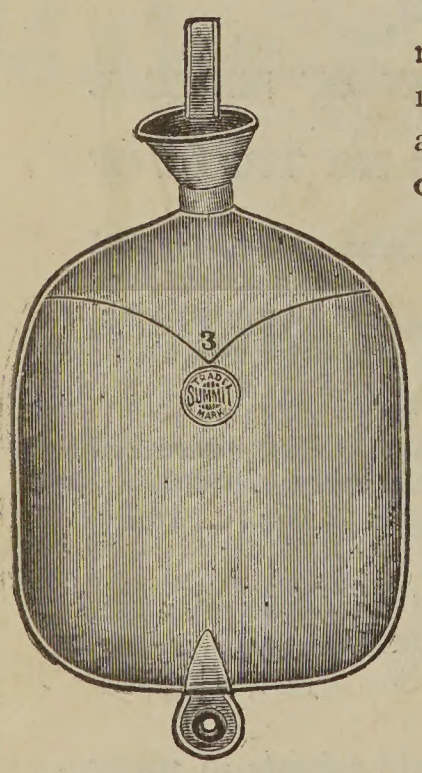

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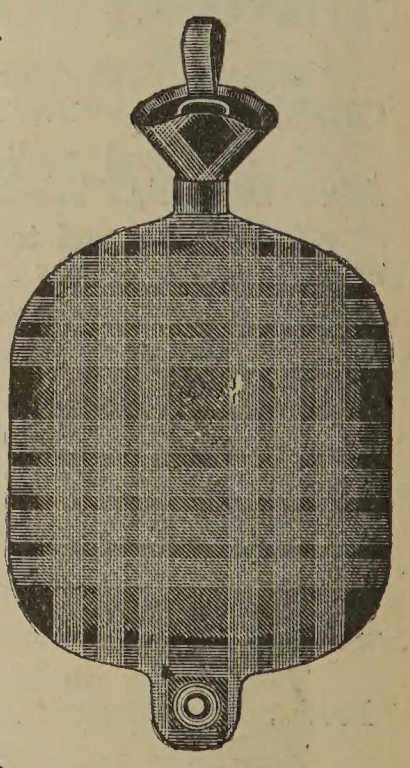

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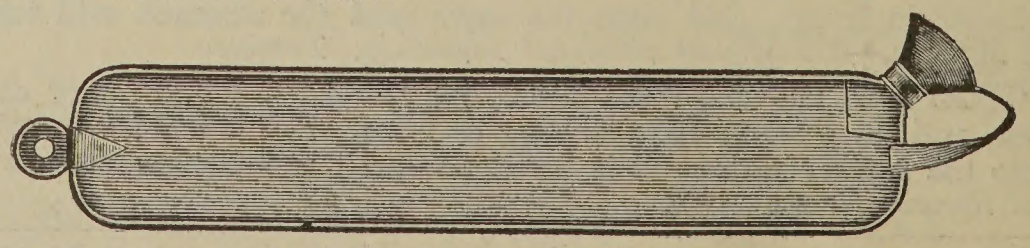

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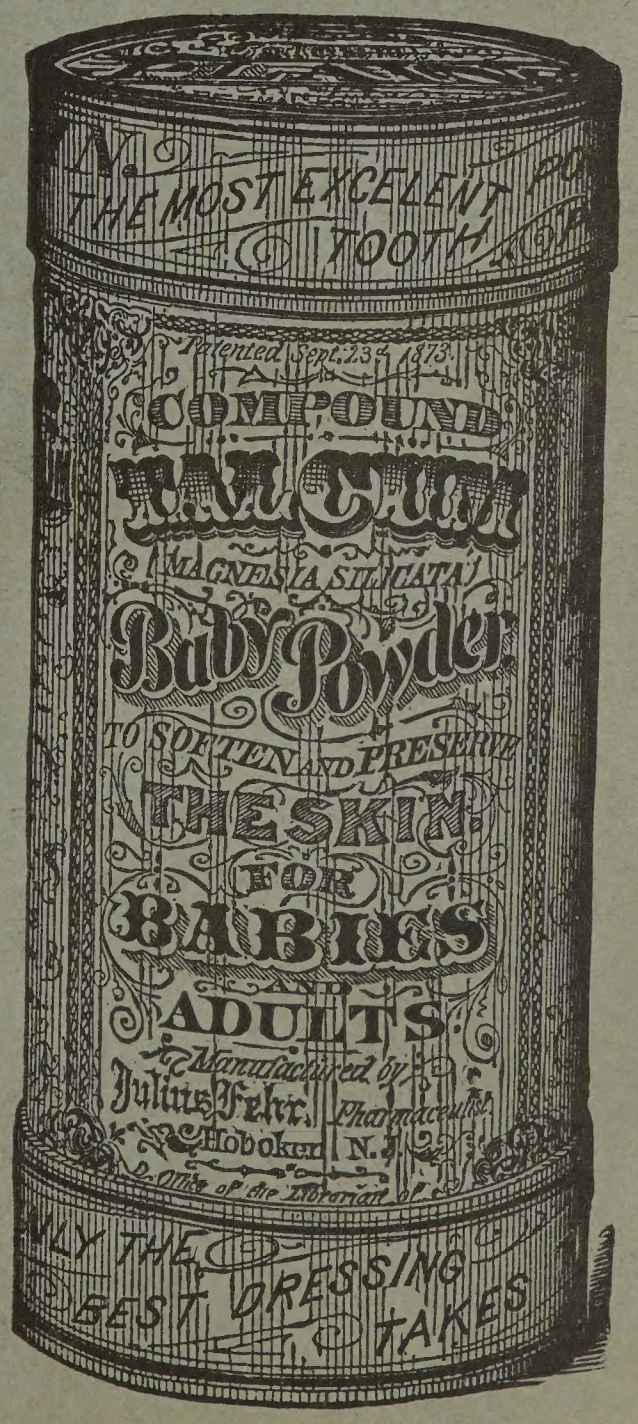

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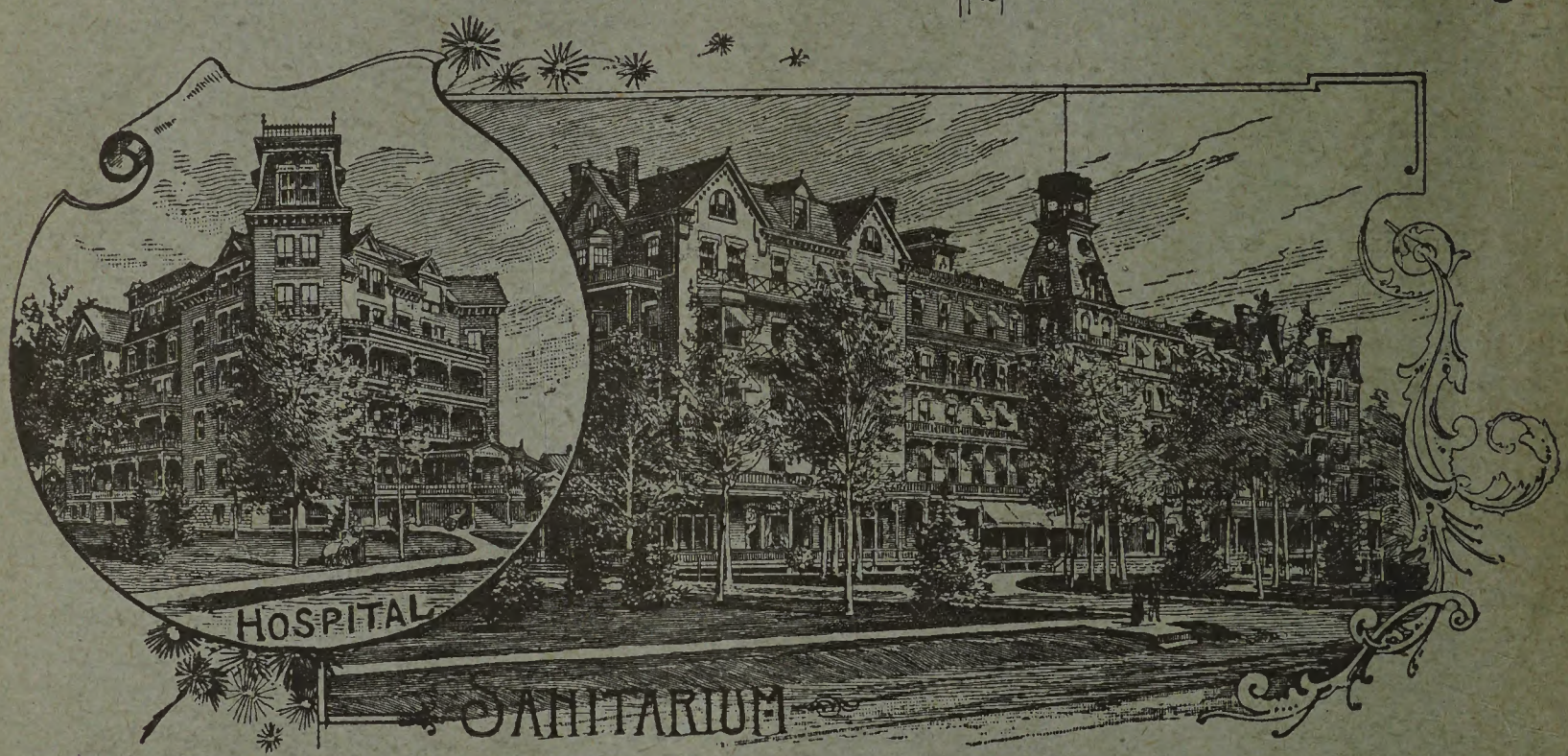

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